Public Utilities

FORTNIGHTLY

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OCTOBER 13, 1960

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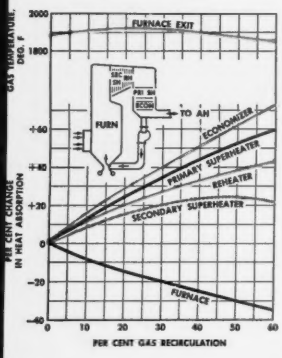
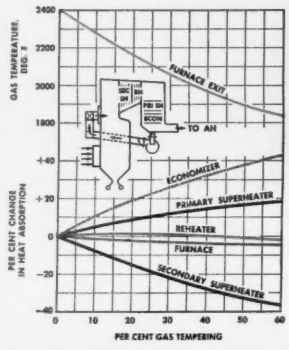


Effect of Gas Tempering at Furnace Exit
(Constant Firing Rate)



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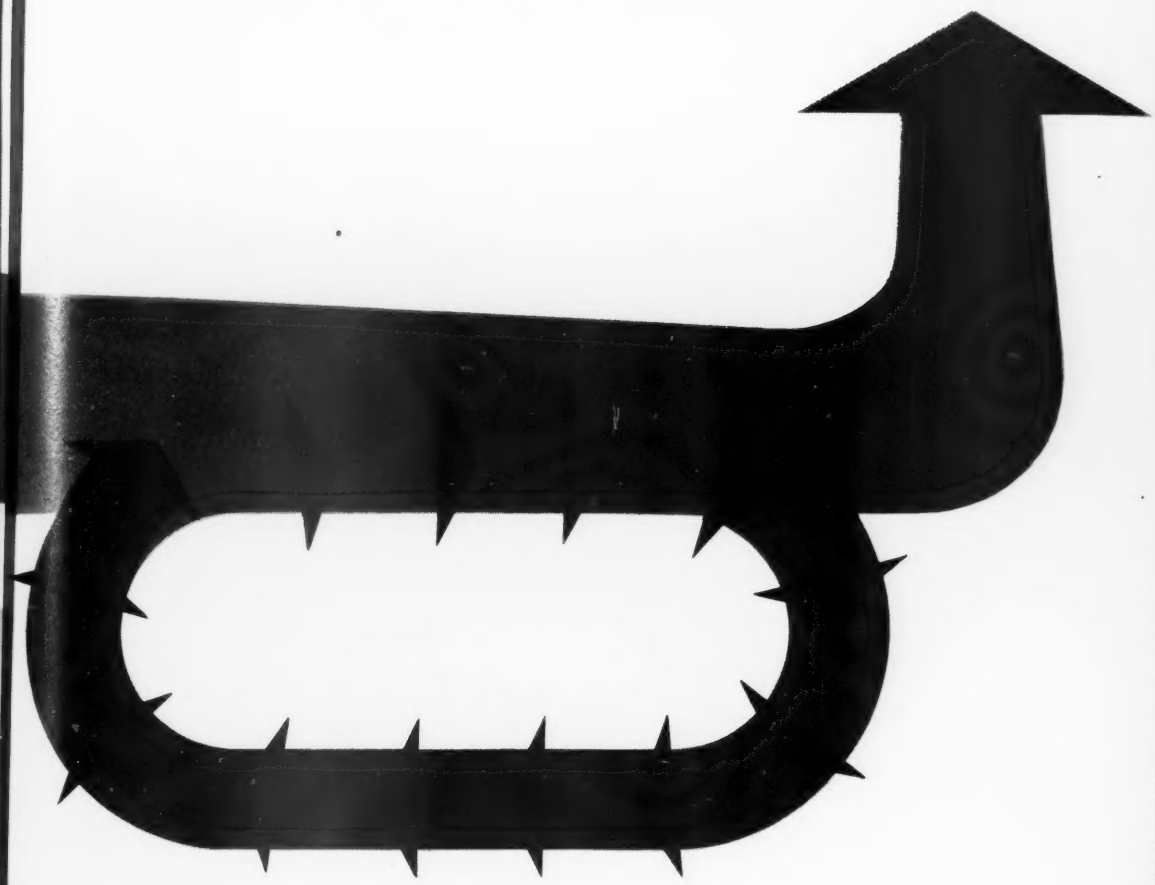

S CONDITIONING

however, Gas Conditioning introduces proportioned flue gas to "temper" furnace exit gas to maintain desired temperature. This greatly reduces ash fouling, corrosion and creep of tube surfaces in the superheater, guards against enameling of ash on superheater tubes, and permits a significant reduction in the high alloy requirements.

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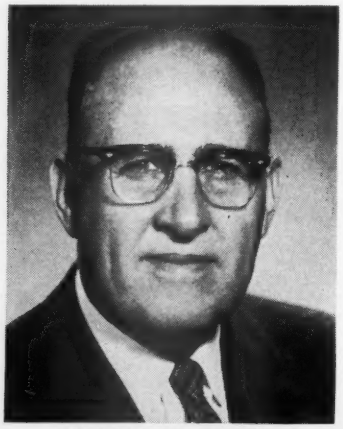
Pages with the Editors

In this, our annual special "gas issue" to salute the national convention of the American Gas Association, we are again presenting an increasingly popular feature started two years ago: a compendium of individual statements from gas company executive officers. It will be found beginning on page 35 and we honestly feel that it presents a most illuminating cross section of official thinking of gas utility industry management on various facets of operation.

It is more than a coincidence, therefore, to note the recurring stress placed by these gas industry leaders on competition and what the gas companies must do about it. We see this reflected in the theme of the forty-second AGA convention being held in Atlantic City, New Jersey, October 10th to 12th. We see it also in the leading article in this issue, exclusively prepared for Public Utilities Fortnightly by the president of the American Gas Association, Wister H. Ligon.

It was just a year ago that Mr. Ligon, a man conditioned to the rigors of competition, began his term as AGA president by adopting a "full speed" ahead campaign. This concept has been emphasized in the areas of research, promotion, and advertising, public information, and gas industry harmony. A graduate of Georgia Tech, Mr. Ligon has held gas utility positions in both sales and engineering. He has been in the thick of a stiff competitive situation for several years by reason of his position as president of the Nashville Gas Company, which is forced to compete with the Tennessee Valley Authority, and does so successfully. He has been chairman of the Executive Conference Committee and various other committees of the AGA. He has also served as past president of the Southern Gas Association.



WISTER H. LIGON

HANS E. NISSEL

* * * *

Dr. Hans E. Nissel, whose article on "The Impact of Cost Allocations upon Future of the Natural Gas Industry" begins on page 512, is a native of Germany and a graduate of the Karlsruhe, Munich, and Berlin Institutes of Technology (BS, '22; MS, '24; PhD, '28). He left Germany in 1933 and for fifteen years practiced his profession in Egypt and the Middle East. He came to the United States in 1948 and has done extensive work for the natural gas industry, frequently appearing before various state commissions and the Federal Pow-

only the beginning...

Tremendous growth has marked Panhandle Eastern's 30-year history . . . yet the accomplishments of those first three decades will be more than equalled in the years ahead.

Panhandle Eastern and its subsidiary, Trunkline Gas Company, serve the industrial heartland of America . . . one of the nation's fastest-growing sections. Vigorous growth of both population and industry produces an ever-increasing demand for natural gas.

Panhandle Eastern intends to increase its system capacity by 400,000 Mcf per day, to a total of 1,825,000 Mcf per day. And planning for further growth continues.

Reserves now exceed 13 trillion cubic feet, insuring more than 20 years' supply after the next expansion. A vigorous exploration program, coupled with continuous acquisition of production in the gas producing fields, indicates Panhandle's confidence in the future.

Panhandle Eastern's substantial investment in National Distillers and Chemical Corporation is importantly beneficial to Panhandle stockholders. National is the world's second largest producer of polyethylene, for which natural gas supplies the raw material.

Operating revenues for Panhandle have almost tripled in the past ten years, and the next decade will see no slackening of that growth. The first thirty years, successful as they have been, were only the beginning!

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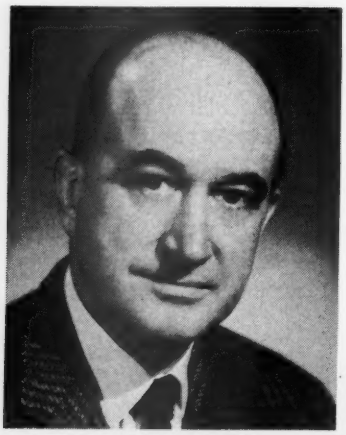
er Commission. His main fields of activity are cost analysis, rate design, engineering economics, and other economic and technical subjects on which he has published several books and numerous articles. He now practices as a consultant at Old Greenwich, Connecticut.

* * * *

G. T. (Ted) Kellogg, whose article on "Gas Air Conditioning Moves Ahead" begins on page 525, is publicity and information manager of Air-Conditioning and Refrigeration Institute of Washington, D. C. His background is that of a professional writer and public relations man. He came to Washington in 1930 as a reporter for the *Evening Star* and has since written numerous articles and made free-lance contributions to trade magazines in several fields. He was educated at George Washington University in Washington.

* * * *

Dr. Paul G. LaGrone, whose article on "Financing the Expansion Program of the Natural Gas Transmission Industry" begins on page 535, is an associate professor of the University of Arkansas. He is also a member of Arthur Andersen & Co., the national accounting firm, based in St. Louis, Missouri. Dr. LaGrone was born in Greenville, Mississippi, and was educated at Bowling Green College (Kentucky; BS, '47), University of Denver (MBA, '48), and the University of Alabama (PhD, '58). He



G. T. KELLOGG

PAUL G. LA GRONE

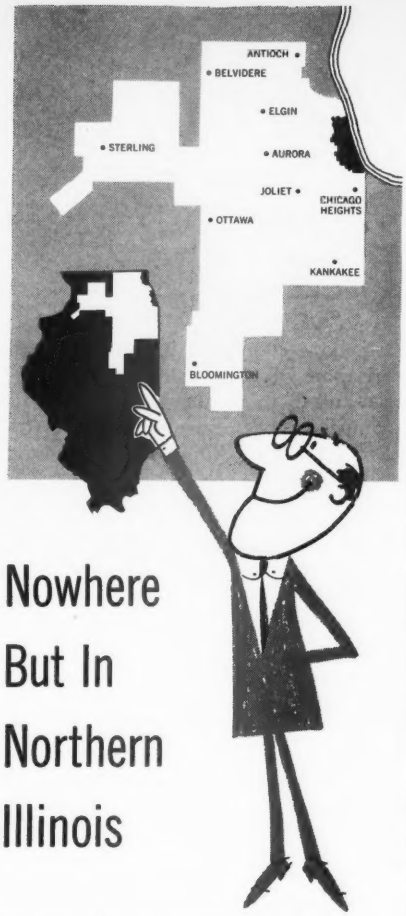
was a naval aviator in World War II, attaining the rank of Lieutenant Commander. Dr. LaGrone has written an illuminating explanation of the peculiar requirements of gas transmission financing and what such companies must look for in the future.

* * * *

We imagine that there will be a number of our readers who will experience a nostalgic twinge in reading the entertaining account on the resurrected gas lamp by James H. Collins, Washington business writer, which begins on page 550. Boyhood memories of those who can recall the gas mantle lamp period of the early years of the century doubtless reflect a pleasant recollection of soft luminous light in homes and along the quiet streets of that period. Lighting engineers would probably differ; and if we could actually see it again it might seem a bit on the greenish, glaring side. But Mr. Collins has assembled enough information to indicate that there are good, hard-headed reasons for developing the latest ornamental types of gas lighting. The manufacturing and sales activity alone in this area indicates that it is more than a sentimental fancy.

The next number of this magazine will be out October 27th.

The Editors



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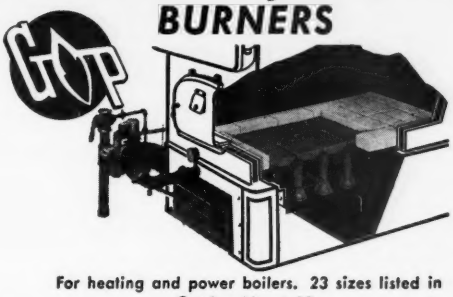

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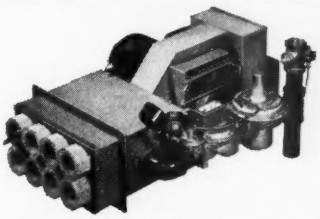

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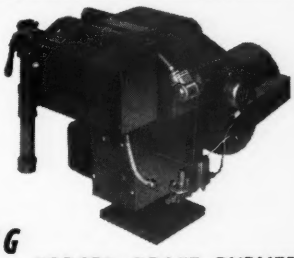

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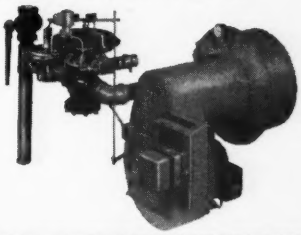

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Coming in the Next Issue...

(OCTOBER 27, 1960, ISSUE)

THE TELEPHONE INDUSTRY WELCOMES MORE CO-OPERATION

An independent telephone company executive has two sets of problems. There are those which are common to the telephone industry as a whole, and there are those which are peculiar to the independent companies, as distinguished from system companies of the Bell organization. C. C. Pearce, president and general manager of the Farmers' Telephone Company, Riceville, Iowa, has written an introductory message explaining the importance of the United States Independent Telephone Association's program for independent telephone company people.

THE IMPACT OF REGULATED INDUSTRY ON THE NATIONAL ECONOMY

James W. Cook, vice president in charge of public relations for the American Telephone and Telegraph Company, thinks that the part regulated industry plays in national economic growth may be quite generally overlooked. Only on rare occasions, such as the recent launching of the communications satellite, Echo I, is public attention commanded by the contributions which regulated utility industries generally make as a matter of routine.

COMMUNICATIONS IN BUSINESS

In the telephone business management has frequent reason to be aware of the importance of the public image it creates. Because of the significance of the service provided, telephone companies operate under continued public scrutiny, and the greater public knowledge which results helps the companies to do a better service job. Thomas W. Eadie, president of the Bell Telephone Company of Canada, discusses the importance of his industry's communication with the public, especially the stockholders.

THE FUTURE RÔLE OF COMMERCIAL COMMUNICATIONS

Communications is a much used word but it means so many different things to different people: a letter, an interoffice memorandum, a telegram, a telephone message, or radio signals. All are communications of a sort. Francis X. Welch, editor of PUBLIC UTILITIES FORTNIGHTLY, has undertaken to sketch in broad outline the place which the telephone industry as such may have to carve out for itself in an increasingly complex future area.

BELL'S GARDEN OF GROWING MANAGERS

Among the most important duties of utility management is the duty to reproduce itself. This does not necessarily mean growing the same kind of executives or supervisory people for tomorrow that the company now has. On the contrary, it means looking to the future and the peculiar needs of the future. James H. Collins tells of the Bell system's garden for growing future managers.

AND IN ADDITION . . . *Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.*

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Most of these firms need flexible and dependable fuel for their critical operations—and find it in the area's natural gas supply.

This community offers ideal locations for organizations or companies engaged in technical or scientific activity. Proximity to the many specialized agencies and professional personnel, transportation facilities that mark the crossroads of the world, utility service geared to the area's rapid and continuous expansion—these are some of the reasons. The Washington Gas Light Company will welcome inquiries.

WASHINGTON GAS LIGHT COMPANY

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MAURICE H. STANS
Director, Bureau of the Budget.

"Government at all levels must cease trying to be supermarts for every imaginable public service, and instead concentrate on essentials."

ADLAI STEVENSON
Former governor of Illinois.

"We Americans have a penchant for believing that sufficient inputs of energy and dollars can solve any problem. We rush in where angels fear to tread and frequently we profit, but sometimes we learn why the angels, in their greater wisdom, have not joined us and preferred to stay aloft."

FREDERICK H. MUELLER
Secretary of Commerce.

"We firmly believe that it is not the wise course or the rightful purpose of the federal government to compete with private enterprise, harass private enterprise, and to drain from the bloodstream of the economy the savings urgently needed for investment in private production, private jobs, and private growth."

EDITORIAL STATEMENT
The Wall Street Journal.

"The great strength of the American economy, militarily as well as otherwise, is the degree to which it still possesses freedom. In the complex interaction of millions of individual economic judgments and adjustments is the powerhouse that has generated our present living standards and the push to future economic growth."

LEWIS HANEY
Columnist.

"I for one think that we need some competition within unions to keep them democratic and representative. We need competition among employees to keep competition among employers. And we need to preserve collective bargaining by making it free. Today labor monopoly may be the greatest single threat to the free enterprise system."

ERWIN D. CANHAM
Editor, Christian Science Monitor.

"It is quite important that we should define the purposes of economic growth. Undefined, the whole subject takes on a kind of gross, materialistic aspect, generally associated with chambers of commerce and Madison avenues. We would seem to seek to pour more riches into our overflowing cornucopia of abundance. It is almost indecently greedy."

LEON H. KEYSERLING
Economist.

"The one overriding problem in our economic system today is the lack of a clear national purpose. To achieve a statement of our goals and to do so in a democratic rather than a totalitarian manner we need to take material and spiritual factors and blend them into a composite. We cannot isolate any one single economic issue, like the one of inflation and growth, and expect to solve it apart from the consideration of our overall national objectives and values."

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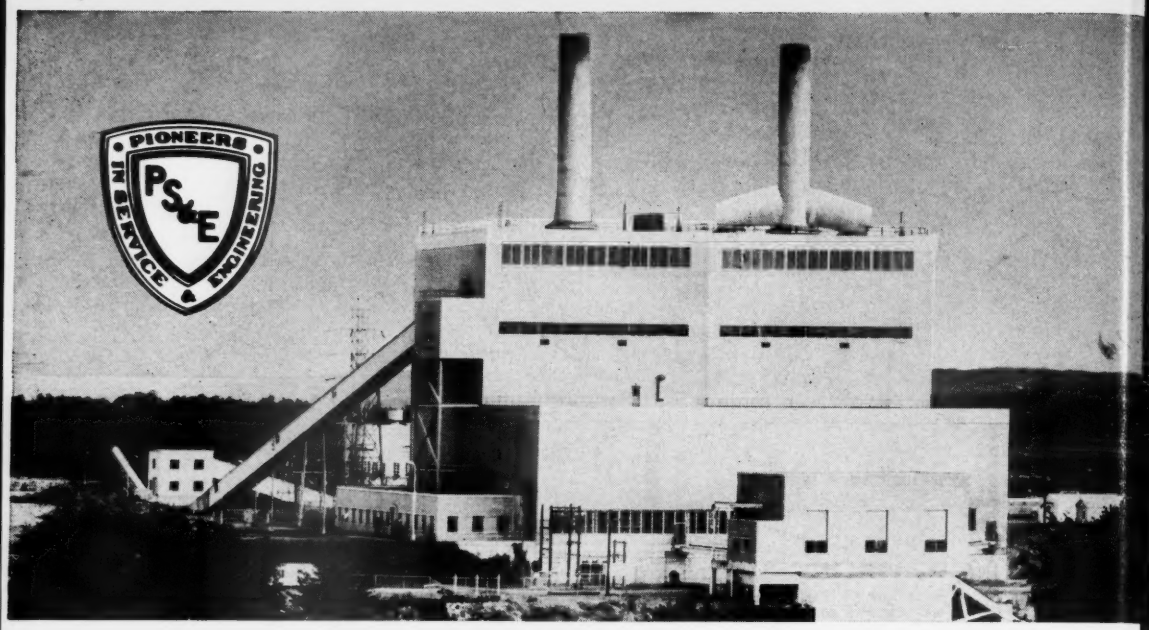

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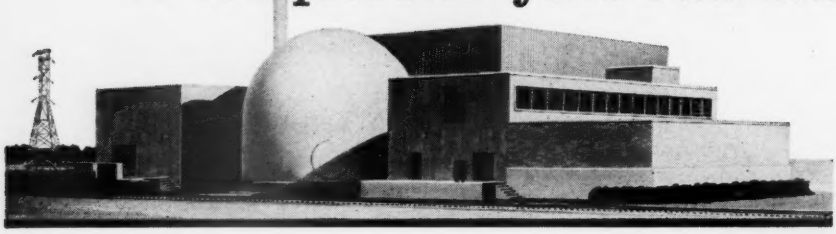

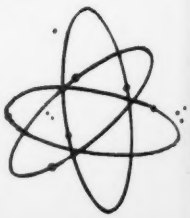

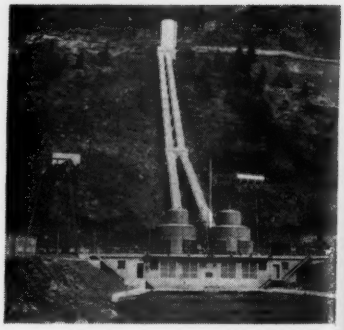

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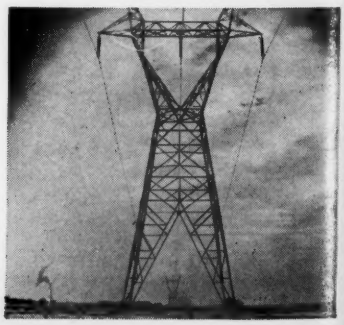

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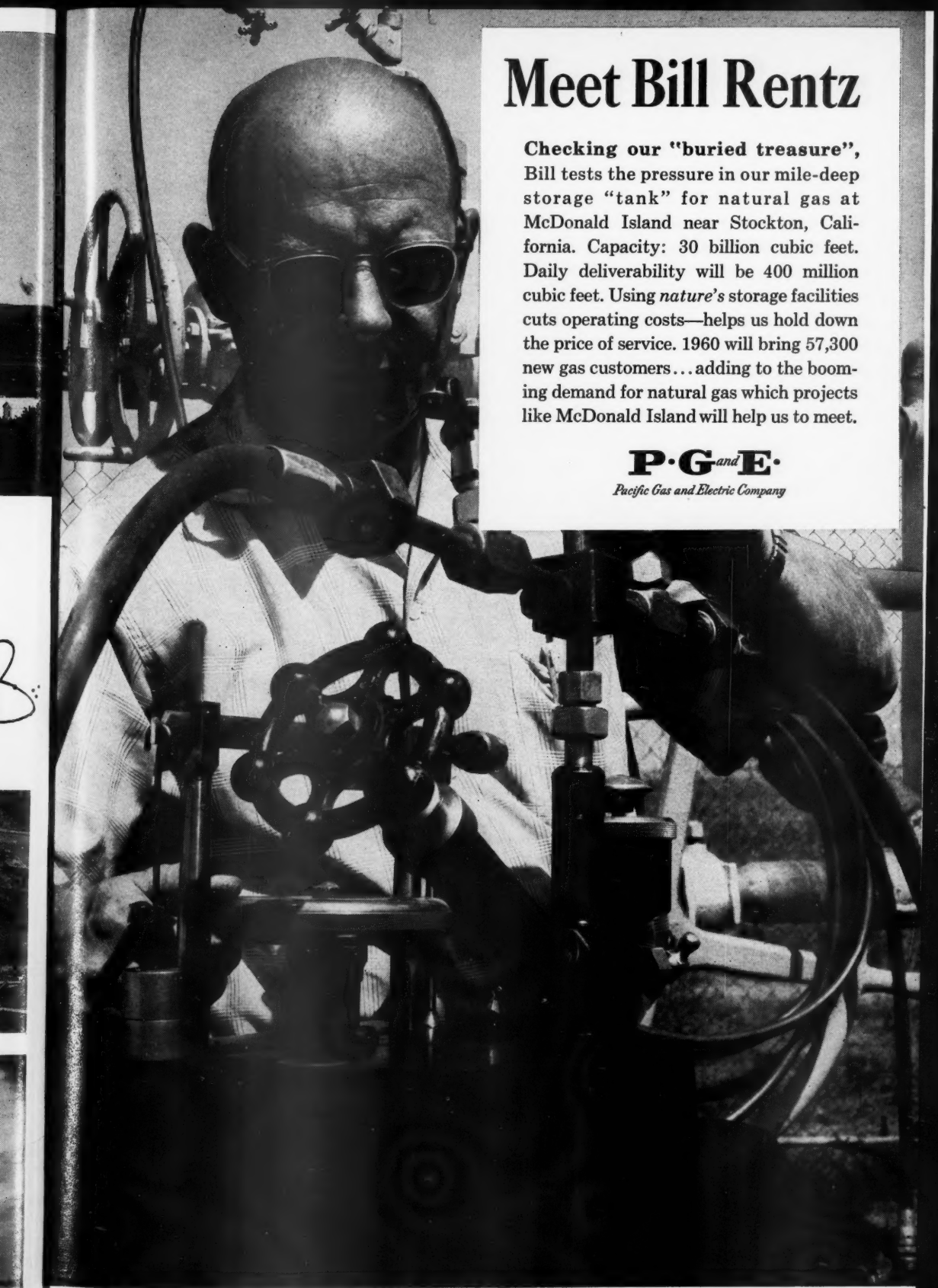


Meet Bill Rentz

Checking our "buried treasure", Bill tests the pressure in our mile-deep storage "tank" for natural gas at McDonald Island near Stockton, California. Capacity: 30 billion cubic feet. Daily deliverability will be 400 million cubic feet. Using *nature's* storage facilities cuts operating costs—helps us hold down the price of service. 1960 will bring 57,300 new gas customers... adding to the booming demand for natural gas which projects like McDonald Island will help us to meet.

P·G and E·

Pacific Gas and Electric Company

THE POWER TO GROW

BUILDING BIG MEANS MONEY

The men who make the management decisions of America's electric utilities know that their individual companies and their industry are up against the challenge of the most dramatic need for system expansion and new construction we have ever seen. The population and economic growth projected for the next decade are the measure of the challenge.

Building big means money. Where is the money coming from? Competition in capital markets is keen and growing keener. Regulatory commissions—however conscious of the need for earnings adequate to attract new capital—must, in the nature of the case, stand as a check to rate increases. Earnings must continue to be under the pressure of higher wage costs. Where do we look for earnings in our industry that will draw in the capital amounts the next decade will demand?

We look surely, where we have always looked—to increased efficiency and to technical progress in the production and transmission of our product. We count on maintaining the record we have achieved so successfully so far in meeting the nation's power needs at costs so economical that—had other segments of industry managed as well—we should today have no problem of inflation.

The Moloney Electric Company, from the very beginning of the electric utility industry, has played its part in the making and the maintaining of this record. As the leading independent specialist in transformer production, development and research, Moloney has had a share in every major forward step of transformer improvement. Moloney continues, in its particular and pinpointed area of excellence, to give assurance that Moloney's resources, facilities, and production capacity will continue to be available to the electric utility industry in the service of a growing nation.

Since 1896... MORE POWER TO YOU

MOLONEY ELECTRIC COMPANY

MANUFACTURERS OF TRANSFORMERS FOR
UTILITIES • INDUSTRY • ELECTRONIC APPLICATIONS

Sales Offices In All Principal Cities

AT ST. LOUIS 20, MO., AND TORONTO, ONT., CANADA

ACTORIES

Have You Seen the New St. Louis?

It's changing fast these days. Before long the Gateway to the West should look like this. Since the war, Greater St. Louis has grown at a rate well in excess of the national average. But coupled with this burgeoning growth has come a new Spirit...a dramatic trend in planned civic development that is rapidly changing the face of the City on the Big River.

Laclede Gas Company is proud to serve the area of St. Louis and St. Louis County with natural gas for home, commerce and industry. Laclede is glad to be a part of the New Spirit of St. Louis.

Laclede Gas

Memo to Shareholders of UNITED GAS CORP. from D. T. MacRoberts, Research Director

RESEARCH: *Key to many UGC Operating Problems*

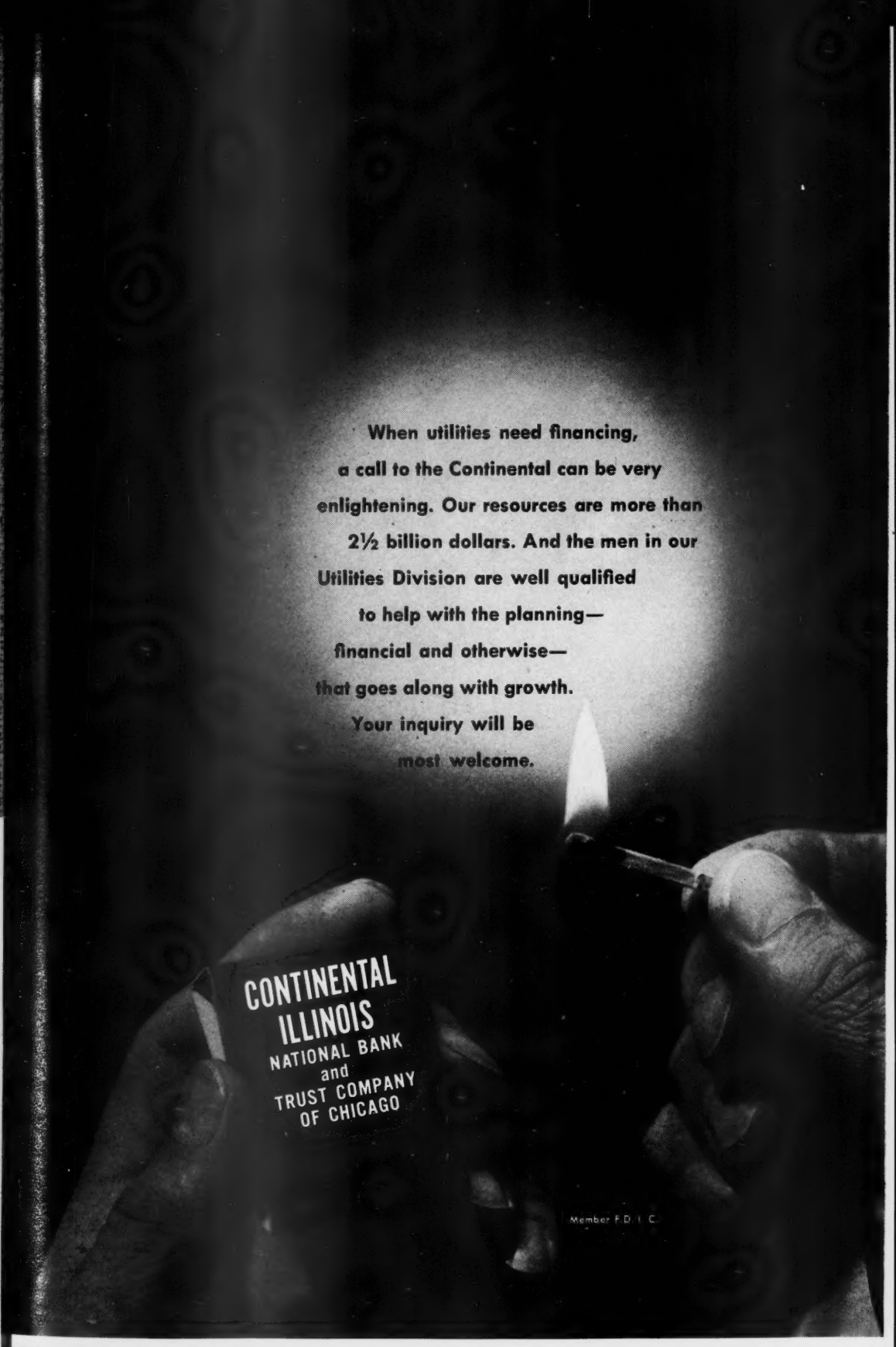
PROBLEM: Simplify recording of gas meter readings; expedite calculation of statements; save money. The problem exists in every gas company, electric company or water system.

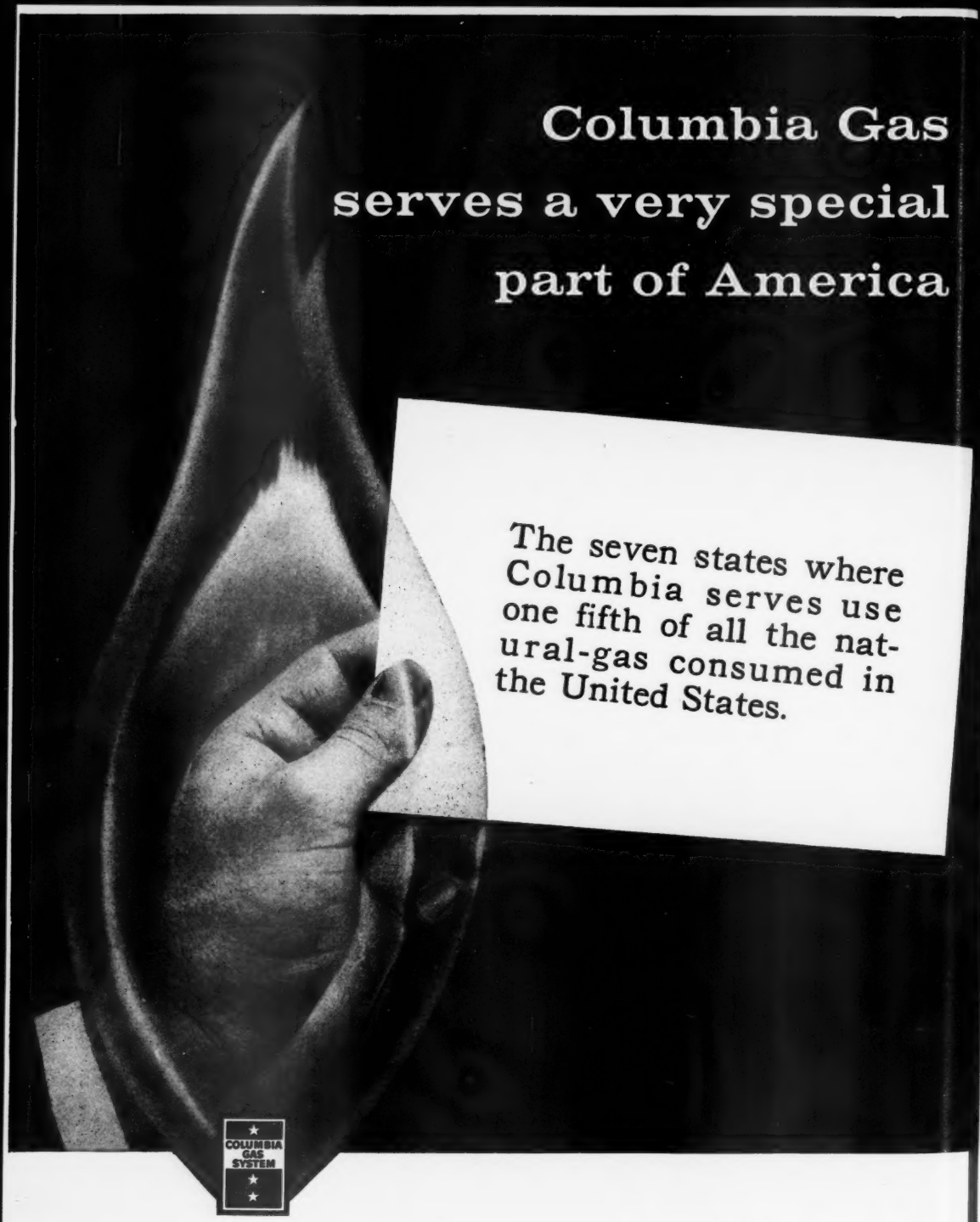
SOLUTION: United Gas researchers develop tape recording device that eliminates old-fashioned route books, prepares tape ready for electronic computer.

UGC INSTRUMENTS, a new division of United Gas Corporation, has developed and is now marketing numerous electronic and mechanical aids for the gas and oil industry —each being the solution to a specific operating problem.

UNITED GAS CORPORATION SERVING THE GULF SOUTH

Headquarters, Shreveport, La.


When utilities need financing,
a call to the Continental can be very
enlightening. Our resources are more than
2½ billion dollars. And the men in our
Utilities Division are well qualified
to help with the planning—
financial and otherwise—
that goes along with growth.
Your inquiry will be
most welcome.
CONTINENTAL
ILLINOIS
NATIONAL BANK
and
TRUST COMPANY
OF CHICAGO
Member F.D.I.C.


Columbia Gas
serves a very special
part of America
The seven states where Columbia serves use one fifth of all the natural-gas consumed in the United States.
COLUMBIA GAS SYSTEM

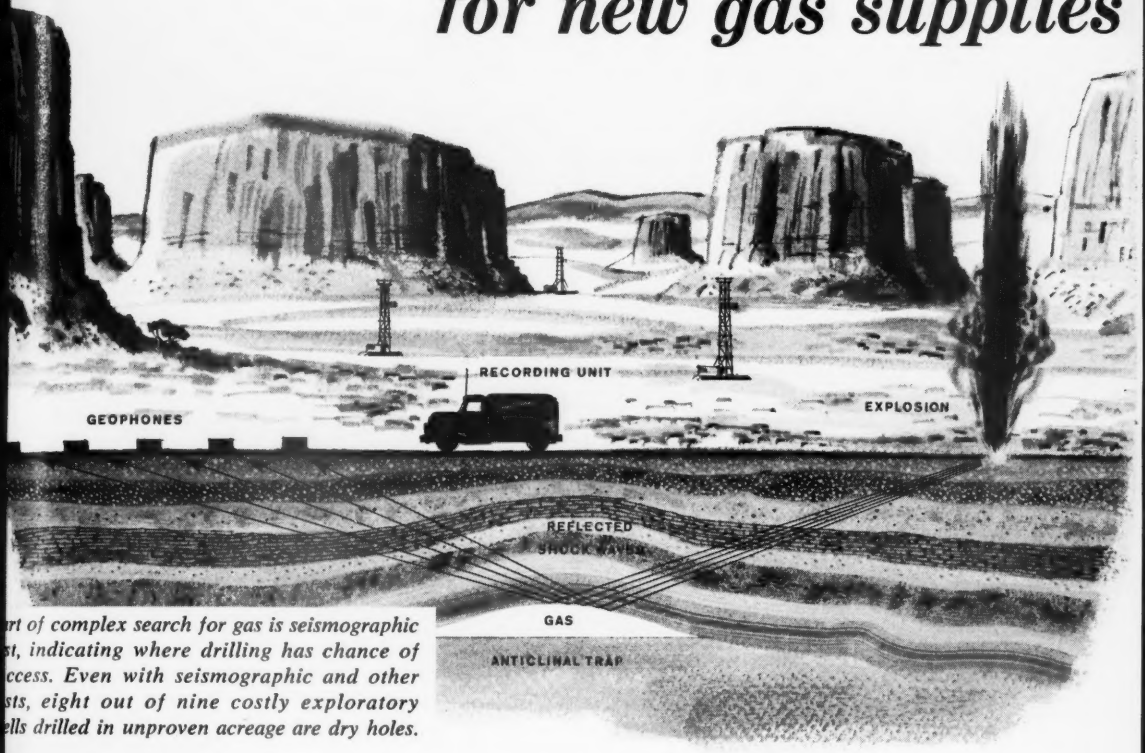
Throughout its service territory—in Ohio, Pennsylvania, West Virginia, Kentucky, Virginia, Maryland and southern New York—natural gas continues to be the *preferred fuel* for home and industry.

THE COLUMBIA Gas SYSTEM, INC

COLUMBIA GAS SYSTEM SERVICE CORPORAT
COLUMBIA HYDROCARBON CORPORAT
120 EAST 41st STREET, NEW YORK 17,

CHARLESTON GROUP: UNITED FUEL GAS COMPANY, 1700 MacCORK AVENUE, S.E., CHARLESTON, WEST VIRGINIA. **COLUMBUS GROUP:** T OHIO FUEL GAS COMPANY, 99 NORTH FRONT ST., COLUMBUS 15, OH **PITTSBURGH GROUP:** THE MANUFACTURERS LIGHT AND HEAT CO PANY, 800 UNION TRUST BLDG., PITTSBURGH 19, PA.

We've got to probe the country for new gas supplies



rt of complex search for gas is seismographic st, indicating where drilling has chance of ccess. Even with seismographic and other sts, eight out of nine costly exploratory ells drilled in unproven acreage are dry holes.

The search for natural gas is costly, risk-filled and time-consuming. It means probing the depths of the earth for sources of new reserves.

And the search can never halt.

Natural gas is America's fastest growing source of energy. Today it accounts for approximately 30 per cent of all the energy used in this country.

To meet future needs, vast new supplies of natural gas must continue to be discovered as present reserves are used up. Without unremitting exploration, natural gas—essential to our economy—could become unavailable at any price.

Consumers everywhere have an important stake in assuring that incentives for the discovery of new reserves are sufficient to provide the future gas supplies on which the nation depends.

El Paso Natural Gas Company is the nation's most active pipeline in the exploration for and development of new gas supplies.

EL PASO NATURAL GAS COMPANY

CONTINUING TO SERVE BUSINESS AND INDUSTRY

Irving seminars open the doors of Wall Street to Utilities

At One Wall Street, Irving specialists are ready with new and sound approaches—with seminars, for example, designed to provide the financial insight demanded by today's rapidly growing Utilities. In addition to meetings with Irving specialists, these seminars offer contact with experts from the many areas of the Wall Street community. It is these experts who actually make the Irving seminars possible.

Here's a brief list of some of the doors Irving opens for Public Utility executives during a Seminar Week:

Inside view of rating agencies—explanation of the functions of the investment banker—operations of the stock exchange—the broker and dealer and the over-the-counter market—concept of regulation—cost-of-capital—and others.

So goes a typical week that utility executives from over 100 companies across the country have found invaluable in familiarizing themselves with the ins and outs of the world's financial community.

IRVING TRUST COMPANY

One Wall Street, New York 15, N.Y.

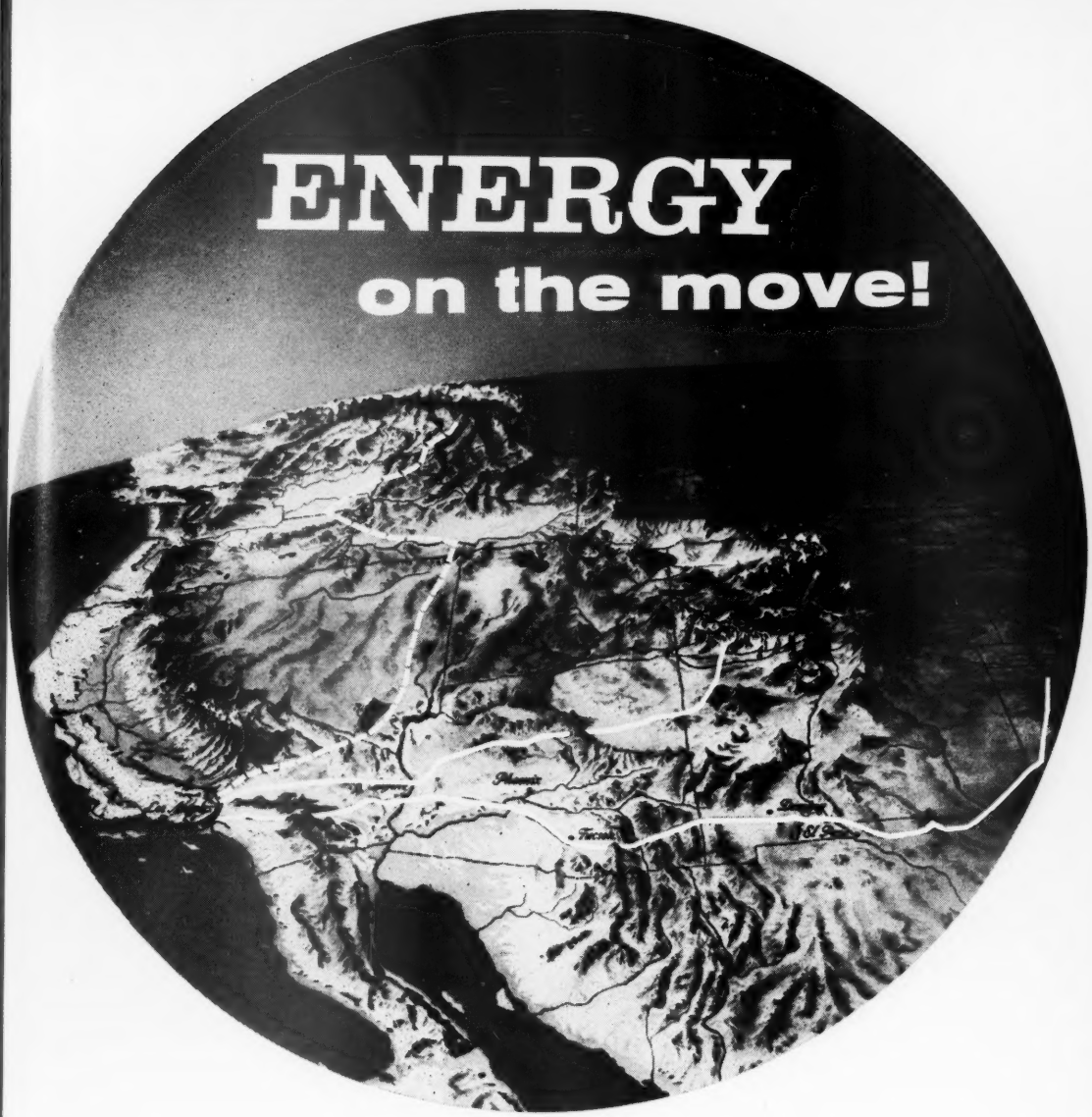
Capital Funds over $145,000,000 *Total Assets over $1,700,000,000*

GEORGE A. MURPHY, *Chairman of the Board* WILLIAM E. PETERSEN, *President*

Public Utilities Department—JOHN F. CHILDS, *Vice President in Charge*

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

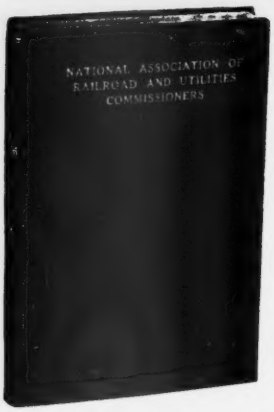
ENERGY
on the move!



Beyond the horizon, stretching across and up half a continent are today's and tomorrow's new highways of power—the natural gas pipelines. This is energy on the move. More power for the homes and industry of America's fastest growing region. This is the unceasing underground movement that every hour of everyday matches the westward migration of a nation. We are proud to be a part of this dramatic story.

SOUTHERN CALIFORNIA GAS COMPANY **SOUTHERN COUNTIES GAS COMPANY**

Interconnected for dependable service through Pacific Lighting System



PROCEEDINGS
1959 CONVENTION

AT PHILADELPHIA, PENNSYLVANIA

NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS

THIS edition contains valuable material on the subject of regulation of rates and services of public utilities and transportation companies including the following:

Rates of Public Utilities and Transportation Agencies, Valuation, Railroad Problems, and Regulation of Public Utilities, Panel Discussion on the subject of "Inflation and Its Effect on Utility Regulation of Rates and Utility Financing," Addresses on "Legislation Affecting the Federal Regulatory Process" and "The Impact of the Supreme Court Decision in the Service Storage and Transfer Case." This volume contains a complete transcript of the addresses and committee reports of the 1959 Philadelphia meeting. The book is printed and bound in regular book cover.

Price $10.00—Approximately 500 Pages

OTHER PUBLICATIONS OF THE ASSOCIATION

1957—Uniform System of Accounts for Water Utilities
Class A & B—128 pages
Accounts for utilities having annual water operating revenues of $250,000 or more . $4.50
Class C—100 pages
Accounts for utilities having annual water operating revenues of $50,000 or more but less than $250,000 ..... 3.50
Class D—64 pages
Accounts for utilities having annual water operating revenues of less than $50,000 .... 2.00

1958—Uniform System of Accounts for Electric Utilities
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Accounts for utilities having annual electric operating revenues of $1,000,000 or more 4.50
Class C—125 pages
Accounts for utilities having annual electric operating revenues of $150,000 or more but less than $1,000,000 ..... 3.50
Class D—59 pages
Accounts for utilities having annual electric operating revenues of less than $150,000 .. 2.00

1958—Uniform System of Accounts for Gas Utilities
Class A & B—212 pages
Accounts for utilities having annual gas operating revenues of $1,000,000 or more 4.50
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Accounts for utilities having annual gas operating revenues of $150,000 or more but less than $1,000,000 ..... 3.50
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1958—Regulations Governing the Preservation of Records of Electric, Gas and Water Utilities 1.00
Telephone Separations Manual (Revised October, 1957) 2.00

Local Service Telephone Rates (Revised 1957)
This includes the rates for all exchanges of the Bell System Companies, the rates in exchanges servicing cities of 50,000 population or more (both Bell and Independent), and a tabulation of exchanges which had a ten cent coin telephone rate as of June 30, 1957. (with set of revised pages for 1958) 2.00

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NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS

P. O. BOX 684 **Washington 4, D. C.**

WE'RE IN A STATE OF GROWTH

Population in the area served by New Jersey Natural Gas Company has increased 36% in the past seven years, double that of the national average.

This residential boom, accompanied by comparable industrial and commercial expansion, has led to New Jersey Natural's extraordinary growth of 118% in revenues and 216% in earnings per share since 1953.

***EARNINGS PER SHARE**

12 mos. ended
Aug. 31, 1953
$.48

12 mos. ended
Aug. 31, 1960
$1.52

* Adjusted for 2-for-1 Stock Split

REVENUES

12 mos. ended
Aug. 31, 1953
$8,146,819

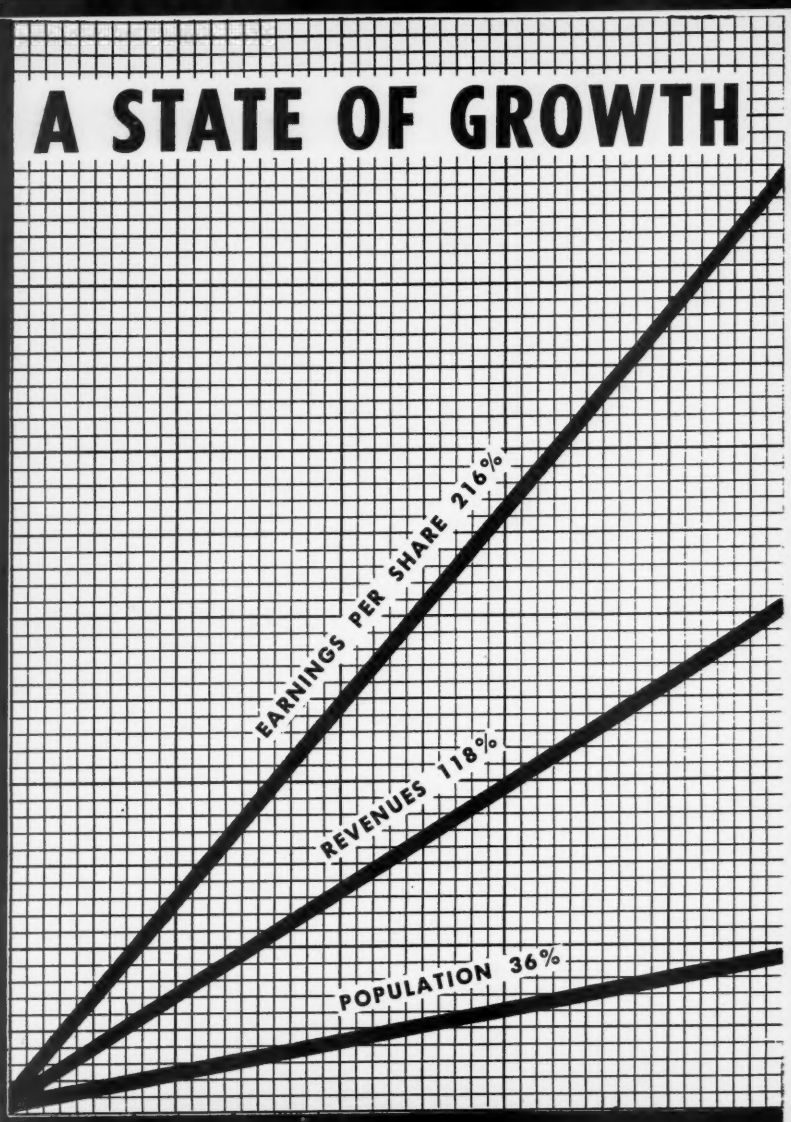
12 mos. ended
Aug. 31, 1960
$17,758,180

***POPULATION**

Aug. 31, 1953
443,169

Aug. 31, 1960
602,845

* Estimated



Serving the fastest growing areas in one of the fastest growing states in the country.

NEW JERSEY NATURAL GAS COMPANY

A product of Chrysler Corpora

Toughest trucks Dodge has ever built. With tight-fisted Cummins diesels or nickel-pinching Dodge V-8 gasoline engines. Real misers with fuel. And built to give you the biggest payloads in the business. In cab forward models like this one, 28″ from bumper to front axle and 89¾″ BBC, allows 35-ft. trailer in 45-ft. over-all length, 40-ft. trailer in 50-ft. over-all length. Exclusive swing-out fenders and 90-degree-opening hood permit "walk-in" maintenance and engine servicing. '61 Dodge trucks are rated from 4300 lbs. GVW to 76,800 lbs. GCW. Priced to compete with any truck coming or going. Toughen up <u>your</u> fleet. See your Dodge dealer now!

DODGE BUILDS TOUGH TRUCKS

HAND-IN-HAND

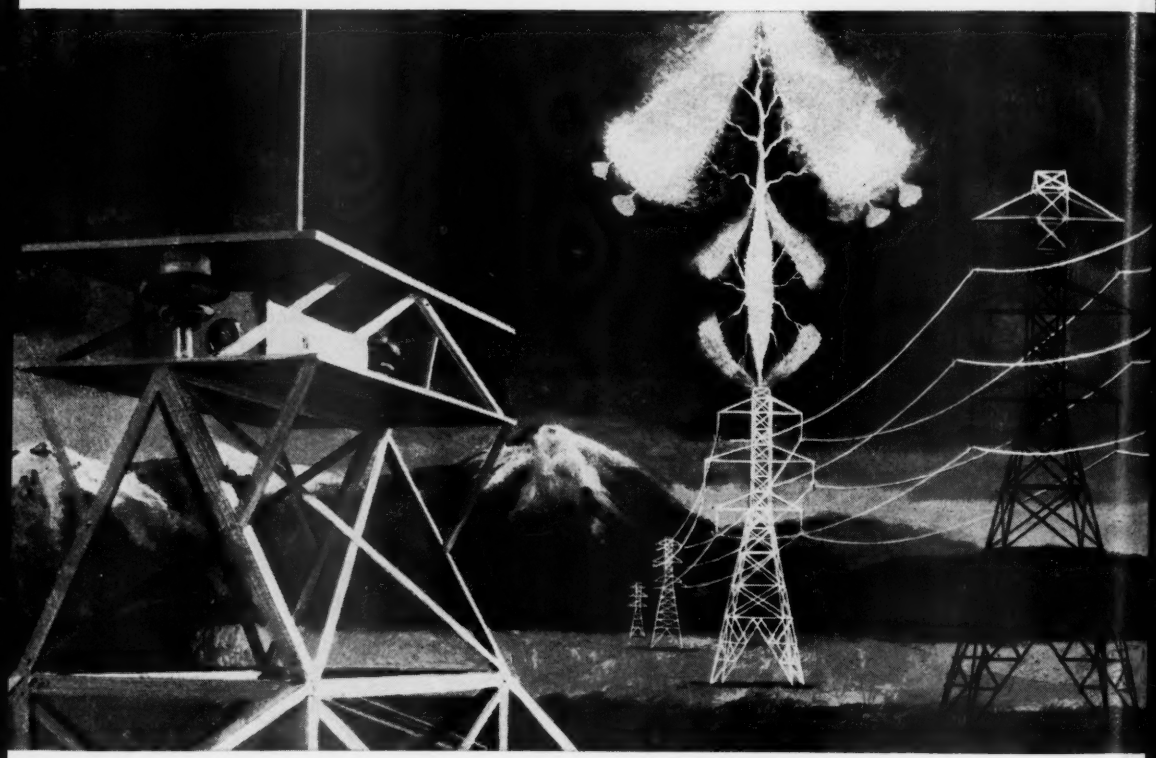
WE MOVE AHEAD

GI and EASTERN PENNSYLVANIA are partners in progress. As this thriving industrial-ricultural area grows, so UGI grows . . . continually investing in new plant, service and stribution facilities to keep pace with the increasing demands for GAS. In Eastern Penn-lvania GAS is the *big help* in progress of present industries . . . a vital "lifeline" for homes . a powerful incentive in attracting new industries and people to the area. UGI takes ide in furnishing this clean, dependable, safe fuel and first class gas service to growing stern Pennsylvania. We foresee a bright, progressive future for the communities we serve th GAS . . . Eastern Pennsylvania's outstanding fuel value.

THE UNITED GAS IMPROVEMENT COMPANY

WESTINGHOUSE POWERCASTING

initiates 3 broad EHV transmission programs to



Westinghouse Powercasting is now extending massive investigations of the last 13 years. The intent? To provide electric utilities a high order of long-range planning. To help anticipate problems, make the right decisions, at the right time. To hold capital investment costs down.

1. New Westinghouse test line probes secrets of radio influence and corona loss at higher voltages

A third intensive Westinghouse study of R.I. and corona is now underway.

At Trafford, Pennsylvania, Westinghouse is building a special line to study fundamentals of corona formation, generation and control of R.I. and the development of new measurement techniques. The knowledge gained from this test line will be applied in a new large-scale test program.

These studies will permit the design of EHV lines above 500 kv when POWERCASTING indicates their need.

2. The lighting surge problem...Westinghouse Prestrike Theory

From intensive studies of the lightning stroke mechanism, Westinghouse has evolved the new and revolu tionary Prestrike Theory. According to this theor the tip of the lightning leader contains a large charg which is rapidly injected into the transmission towe The result is a high-magnitude, short-duration curren —prestrike current—producing very high voltage across the insulator string. The prestrike current wi account for the higher-than-predicted outages on cer tain designs of EHV lines.

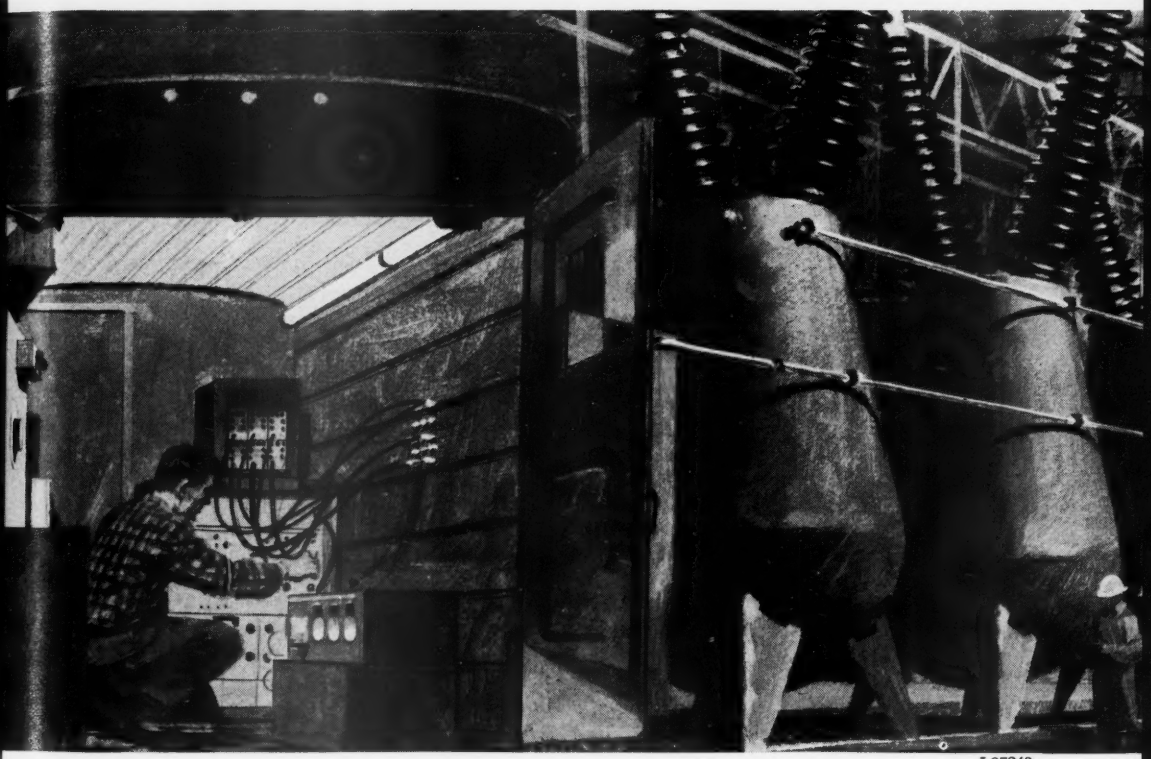
To determine the existence of the prestrike . . .

Westinghouse developed unique current-time measuring instrument, the Kine-Klydonograph

The KINE-KLYDONOGRAPH is one of the many unique instruments developed by Westinghouse t probe the secrets of lightning. It is capable of accurat measurement of the current wave shape of a natura lightning stroke over a wide time range—0.05 to 1 microseconds. The records from these instruments wi verify if the prestrike does exist.

The Kine-Klydonograph is mounted atop the tran mission tower. Since June of 1959, 20 such instrumen

to aid economical use of high voltage



J-97248

have been installed on a 345-kv line, and an additional 60 instruments are being installed this year.

Westinghouse is currently focusing attention on these critical characteristics of lightning. These investigations will lead to more realistic line and equipment design and to more reliable EHV transmission.

3. Westinghouse—AEP, in two-year field test program, to make extensive study of switching surge problem

Early 1960 will see initiation of the first comprehensive survey of switching surges ever undertaken on an American utility system. Results of this survey will significantly influence the design of future higher voltage systems. The paramount insulation coordination problem for substation equipment is protection against switching surges rather than lightning.

Westinghouse and American Electric Power are cooperating in this study to measure system voltages and currents under a variety of transient conditions—line dropping, line energizations, magnetizing current interruption and de-energization, etc. Measurements will be made on 345-kv and 138-kv circuits. Total activity will involve more than 40 major field tests.

Two areas into which these test results will flow are transformer and switchgear design. Wave shape and frequency of surges are required to determine switching surge strength and BIL. Very little field data is available on switching surges which transformers may encounter. Most information on magnitude and frequency of surges has been determined by analog computer studies. Ideally, computer studies based on field test data promise the most realistic results.

New tools and new techniques have thus been made available to Westinghouse POWERCASTING . . . a program to unearth new knowledge. In the carefully balanced study program, Westinghouse will reduce present problems to a fuller understanding of switching surges . . . leading to system design ideas that will lower utilities' EHV transmission investment.

You can be sure . . . if it's Westinghouse.

*A Service-Mark of Westinghouse

Westinghouse

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SET YOUR SITE FOR THE FUTURE

On Industrial Long Island!

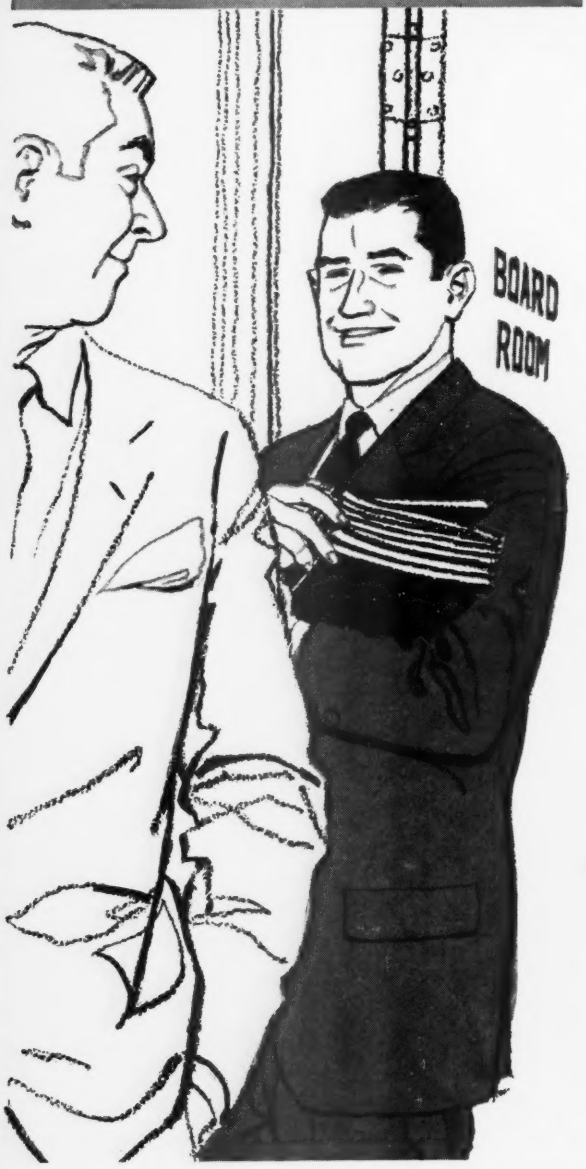
Growing Long Island is now growing industrial Long Island . . . and it's plant site perfect. Just look at the facts and you'll see why every day more and more industries are locating on the Island. Facts like the huge and still growing pool of skilled and unskilled "stay-put" manpower; the easy accessibility to the Port of New York and the markets of the world; the friendly reception to industry that has led to the development of specially designed Industrial Parks all over the Island. A major contributor to this "Welcome Industry" attitude—and to the bright industrial future on Long Island—is the Long Island Lighting Company. LILCO's vast network of power lines and gas mains blankets the Island, supplying plentiful low-cost power for all industry uses. Geared for growth, LILCO is constantly expanding . . . ready to help you profit by power now and in the future! For information about choice Nassau and Suffolk County plant sites, write: Industrial Development Division, Sales Dept., 250 Old Country Road, Mineola, L.I., N.Y.

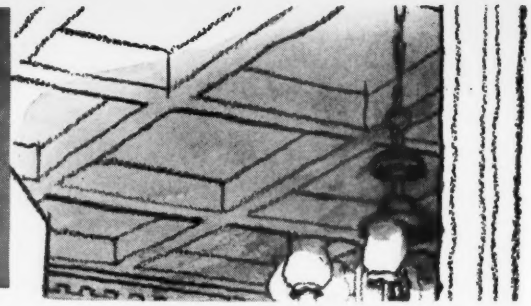
50th LILCO SERVICE YEAR 1910–1960

LONG ISLAND LIGHTING COMPANY

An Investor-Owned, Business-Managed Company

"We were taking the plan for granted"



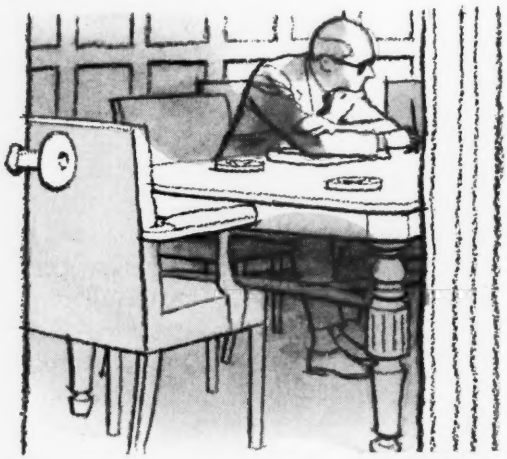


"You know, Ed, it's so easy to take these things for gr ant I knew we'd put in the Payroll Savings Plan a long ti ago. So I just assumed we had a good, sizable number of employees who were buying U.S. Savings Bonds regula

"Well, last week our chairman asked me for the ex figures. When I checked up I found we had less tha third of our people making regular use of the Plan. needed to have someone explain—in person—the conv ience and soundness of this fine thrift program.

"I contacted our State Savings Bonds Director ri away. With his quick, friendly help we set up a thoro canvass of everybody on the staff. We found that many our company family were just waiting to have someone them how simple it is to share in this sound, systema thrift plan. Then the polite suggestion, 'And why not st now?' really did the work. Today we have a participat we're proud of, and we're taking steps to increase it s more, every payday."

Experience of leading companies shows that spread Payroll Savings information through the organization, p son-to-person, results in quick increases in participati And that brings such welcome benefits as lower emplo turnover, better safety records and the keen satisfaction helping your people to contribute to our Nations Pe Power.



ALL U.S. SAVINGS BONDS—OLD OR NEW—EARN ½% MORE THAN BEFORE

Public Utilities Fortnightly

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR A

Utilities Events Calendar

CHECK THESE DATES:

Oct. 13-14—American Association of Advertising Agencies, Central Region, will hold annual meeting, Chicago, Ill.

Oct. 13-15—American Hotel Association will hold annual meeting, San Juan, Puerto Rico.

Oct. 16-19—American Association of Advertising Agencies, Western Region, will hold annual meeting, Coronado, Cal.

Oct. 16-19—American Water Works Association, Southwest Section, will hold annual meeting, Galveston, Tex.

Oct. 17-21—National Metal Exposition will be held, Philadelphia, Pa.

Oct. 17-21—National Safety Council will hold annual meeting, Chicago, Ill.

Oct. 18-21—American Dietetic Association will hold annual meeting, Cleveland, Ohio.

Oct. 18-21—National Association of Educational Broadcasters will hold annual convention, San Francisco, Cal.

Oct. 19-20—National Association of Corrosion Engineers will hold north-central regional conference, Milwaukee, Wis.

Oct. 19-21—American Public Power Association—Tennessee Valley Public Power Association will hold joint accounting and finance workshop, Huntsville, Ala.

Oct. 19-21—American Water Works Association, Chesapeake Section, will hold annual meeting, Washington, D. C.

Oct. 20-21—Electric Council of New England will hold annual conference, Boston, Mass.

Oct. 20-21—Southeastern Electric Exchange, Engineering and Operation Section, will hold meeting, Washington, D. C.

Oct. 20-22—Electric Companies Public Information Program will hold national youth conference on the atom, Chicago, Ill.

Oct. 20-23—Refrigeration Service Engineers Society will hold annual convention, Portland, Ore.

Oct. 21—New England Gas Association, commercial and industrial groups, will hold meeting, Lynnfield, Mass.

Oct. 22-26—Controllers Institute of America will hold annual national conference, San Francisco, Cal.

Oct. 23-25—Independent Petroleum Association of America will hold annual meeting, Dallas, Tex.

Oct. 24-25—South Carolina Telephone Association will hold annual convention, Clemson, S. C.

Oct. 24-27—American Water Works Association, Rocky Mountain Section, will hold annual meeting, Colorado Springs, Colo.

Oct. 24-29—American Gas Association will hold kitchen planning seminar, Lansing, Mich.

Oct. 25-26—American Gas Association—New England Gas Association will hold safety course, Boston, Mass.

Oct. 25-28—American Standards Association will hold national conference on standards, New York, N. Y.

Oct. 25-28—National Association of Corrosion Engineers will hold south-central regional conference, Tulsa, Okla.

Oct. 26-27—Annual Computer Applications Symposium will be held, Chicago, Ill.

Oct. 26-29 — Rocky Mountain Electrical League will hold annual meeting, Colorado Springs, Colo.

Oct. 27-28—Virginia Telephone Association will hold annual convention, Roanoke, Va.

Oct. 28-Nov. 2—Air-Conditioning and Refrigeration Wholesalers will hold convention, aboard *S. S. Hanseatic;* sails from Ft. Everglades, Fla.

Courtesy, Texas Eastern Transmission Corporation

Preparing for Underground Gas Storage

The 50-inch reamer is largest ever known to be used for drilling of a salt dome for storage of propane gas. Well will be drilled to 3,600 feet, leached, and then will hold up to 2 million barrels of propane.

Public Utilities
FORTNIGHTLY

VOLUME 66 OCTOBER 13, 1960 NUMBER 8

Gas Industry Forges Keys to Competition

By WISTER H. LIGON*
President, American Gas Association

Increased sales and added revenues are the rewards that aggressive gas companies will win in the next decade by climbing aboard the big advertising and promotion push sparked by the American Gas Association on behalf of the gas utility industry. As new uses for gas are developed they must be sold intensively. Residential load will rise only where a total selling effort is made. Only that kind of effort will produce topnotch results in this highly competitive energy age.

ANYONE who singles out programs or activities and indicates, by suggestion or bold claim, that these are the keys to an industry's future, risks his reputation as a prophet.

I accept that risk, for current and anticipated competitive situations in the energy field make it clear to me that accelerated appliance improvement and more aggressive sales promotion are keys absolutely vital to continued gas industry growth. Only by stepping up the pace of these activities can the industry protect and expand its markets.

FOR more than a year, the nation's top financial and industrial leaders have hailed the sixties as the most competitive decade in American history. Nowhere will this competition be keener than in the energy branch of the public utility business.

Although gas and electric companies

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operate in a franchised and closely regulated industry, they are by no means immune to competition. These utilities are, in fact, competing at fever pitch in a race to determine which will get the lion's share of tomorrow's energy market. And, to make it a four-cornered affair, the oil and coal industries also are in the running.

THIS is not mortal combat in the sense that the winner will take all and the losers will immediately retire from the field to succumb from their wounds. Anticipated consumer demands for all forms of energy will be much too great to permit this; there will be plenty of business for all.

It does seem certain, however, that the losers in this race will emerge with less strength, with lower rates of growth, and with much less appeal to the financial community.

The gas industry's recognition of appliance improvement and aggressive selling as major growth-building factors is far from new. Since the early days of World War II, when the American Gas Association's Post-War Planning Committee was organized, the industry has steadily expanded its efforts in these two areas.

AGA's original Research and Promotional Plan, introduced in 1944 as an outgrowth of Post-War Planning Committee recommendations, included co-operative activities in national advertising and domestic gas utilization research, as well as in gas production research. This program soon became the Promotion, Advertising, and Research Program (PAR Plan), under which gas now is advertised and promoted nationally on a $5.5 million annual scale.

EVIDENCE of the continuing need for greater product development and sales promotional effort is pointed up in a recent AGA analysis of the market potential for gas appliances.

The association's market analysts estimate that gas utilities and appliance dealers can sell from 51 million to 57.5 million gas appliances during the five-year period 1960-64.

The major difference between the two figures lies in the levels of product improvement and promotional activity, the higher figure representing the number of units which can be sold if higher production is accompanied by accelerated technical development and more vigorous selling. Both figures compare with gas appliance sales totaling approximately 42.5 million units in the years 1955-59.

Appliance Sales Give a Lift to Growth

WHILE utilities are primarily concerned with selling energy, their futures are closely tied to levels of appliance sales in the communities they serve. Gas, for example, renders no service to the consumer and returns no revenue to the utility company unless and until the fuel is consumed in appliances or equipment. Since utility revenues rise as gas consumption increases, more appliances in service obviously require more gas.

And although it is unlikely that a utility will grow unless appliance sales in its service area remain high, it is possible to have high levels of appliance sales without such sales contributing to utility growth.

If the majority of the gas appliances marketed in 1960 were to replace gas equipment in the homes of present gas utility customers, their sale would indicate

only that gas was holding its own against the competition.

If, on the other hand, a large proportion of this year's appliance sales were to reflect installations in new homes, or the replacement of competitive equipment in homes not previously served by gas, the utility's opportunities for customer growth and higher revenues would be greatly enhanced.

Gas Now Preferred Heating Fuel

GAS has, in recent years, become the preferred heating fuel in eight out of ten new homes in the United States, and house heating represents one of the fields in which gas has gained its greatest strength.

The number of gas heating customers has more than doubled in ten years, showing the impact of the vigorous selling of improved heating equipment, as well as the more aggressive promotion of gas by some 350 companies which converted their distribution systems to natural gas service during the fifties.

GROWTH OF GAS HEATING—1950-59

Year	*Gas Heating Customers**	*Total Residential Gas Customers**	*Gas Heating Saturation*
1950	8.7 Million	22.1 Million	40.7%
1951	10.0	23.0	44.1
1952	11.1	23.9	46.9
1953	12.3	24.6	49.9
1954	13.4	25.4	52.8
1955	14.7	26.3	56.0
1956	16.1	27.2	57.9
1957	17.2	28.1	61.2
1958	18.3	28.8	63.4
1959	19.5	29.5	65.9

*Average for year.
Source, American Gas Association.

AGA records also indicate gas is steadily increasing its lead over its closest competitor—oil—in terms of new central heating system installations. New gas installations in 1959 outnumbered oil installations 2.1 to 1, an improvement over 1955, when gas led 1.4 to 1, and 1950, when gas held a 1.2-to-1 edge.

The gas industry now seeks to lengthen its lead still more by stepping up the pace in gas heat promotion. During the fourth quarter of 1960, at least 18 gas heat advertisements will appear in top-ranking national consumer and builder magazines. In addition, the gas heat story will be told before some 45 million television viewers.

All told, there will be more national advertising on behalf of gas heat in the next three months than in the entire years of 1958 and 1959 combined.

Big Gains Predicted for Gas

GAS industry forecasters predict dynamic growth for the industry during the next ten years. They anticipate a 40 per cent increase in total customers, from today's 32,250,000 to 43 million by 1970. They also estimate that annual sales of gas will nearly double, rising from 88 billion therms to almost 160 billion therms.

While we are excited about these potentials, we also are realistic enough to recognize that forecasts merely suggest what tomorrow *can* be. The pressure is on the gas industry to build upon the firm foundations established in the past several years—and it must be done now! The industry will have to move forward at full speed or risk being left behind by competitors whose pace might be swifter.

In this process of looking ahead, every prediction the gas industry makes, and every goal it sets, is contingent upon one

overriding consideration—the continued and increased acceptance of gas by the consumer. We have no greater responsibility than to keep the public aware of the indispensable place of gas in home, commerce, and industry. We must tell the people—tell them about our new products, tell them over and over again, and tell them in ever-increasing numbers, of the compelling advantages of gas.

The pace of competition has shifted into a new and higher gear in the past twelve months. Fortunately, the gas industry has the means to meet this competition. We *are* meeting the competition —with AGA's Promotion, Advertising, and Research Program.

Advertising Playing Vital Rôle

THROUGH PAR's national advertising and television programs, the industry has developed a strong and dynamic voice to the consumer. There is an increasing awareness, among the leadership of the industry, of the mounting importance of this national advertising on behalf of gas.

It also is encouraging to note the extent to which gas utilities are using AGA's national advertising, building upon its themes, and merchandising this advertising in their own campaigns. With each passing month, the public is being exposed to an ever-increasing tide of gas advertising and commercials.

The cornerstone of this new era of gas promotion was set in place four years ago with the establishment of the National Gas Industry Television Program, under which AGA began sponsoring "Playhouse 90."

As a program, "Playhouse 90" served the industry well. But when it was announced last spring that the show would not be regularly scheduled this season, it was decided to follow a different approach.

The gas industry entered the new television season September 19th with a new program—the "Barbara Stanwyck Show," presented Monday nights by NBC-TV under AGA sponsorship. Each utility now has a show of its own, to be shared with one rather than five co-sponsors.

Expanding Gas Promotion Program

ANOTHER gas industry answer to the competitive challenge is an expanding program in gas promotion, conducted by AGA and supported by gas utilities and manufacturers.

The largest promotional activity ever undertaken by the industry is the Gold Star Award program, which got off to a flying start in 1959. This bold program represents a sharp departure from gas industry tradition. While we have tended to be somewhat price-conscious in the past, we now are merchandising quality rather than price. We are concentrating our most intensive sales effort on top-of-the-line gas ranges built to the highest design and performance standards ever set for any cooking appliance.

Stimulated by this ambitious industry-wide drive, sales of quality gas ranges in 1959 increased by some 211,000 units. The success of the Gold Star program is serving as a strong incentive in accelerating gas industry efforts to win a larger share of the quality appliance market. This effective new program soon will be extended to automatic gas hot water heat-

ers and, eventually, to all other major gas appliances.

Another new star of increasing importance to the industry is the Blue Star, which identifies not only AGA-approved appliances but the most modern gas-equipped homes now being constructed and energetically promoted by the nation's leading home builders in co-operation with nearly 100 gas utility companies.

These national programs demonstrate the gas industry's effective use of the "total selling package," a powerful sales tool which came into being with the introduction of the Gold Star program.

With this total selling package, the industry brings the combined force of its newest advertising and promotional techniques to bear in building greater sales for gas and gas appliances. Now we are well-equipped to "pull out all the stops" —from consumer magazine ads and network TV commercials to billboards and point-of-purchase displays—in a vigorous drive to win new gas customers and retain those now served.

The gas industry also has speeded up the tempo of commercial and industrial advertising and sales promotion, reaching out to win even more customers in these markets which now use two-thirds of the gas we sell.

We shall continue to broaden our activities in these two important fields, not only through magazine and direct mail advertising but through expansion of the group-selling technique, as demonstrated in AGA-sponsored symposiums in the textile, glass, and heat-treating industries and our work with trade associations in the commercial area.

It is important to remember, however, that selling techniques and tools, like gas equipment, must be constantly reappraised and upgraded. They must always be in tune with the times—or one jump ahead —for when they are needed to meet new competitive challenges, they are needed fast!

Research and Development Stressed

Vital as sales promotion is and will continue to be in developing a big-

ger and stronger gas industry, it is fundamental that tomorrow's consumers will demand products and services in tune with *their* times.

These must be conceived and developed through gas industry research.

A growing body of evidence in recent years has made it clear that an expanded and accelerated research and development program is essential to continued gas industry health and prosperity.

Recognizing this need, the American Gas Association retained Battelle Memorial Institute to study the whole field of gas research, and to develop recommendations for the industry's guidance.

Battelle's scientists found that the industry in 1959 was investing less than $5 million a year in research, a sum totally inadequate. They urged that total research spending be tripled as soon as possible, preferably within five years.

AGA responded by increasing its 1960 PAR research budget by about 40 per cent. The association this year is spending nearly $2.5 million for co-operative research under the PAR Plan. By 1965, AGA hopes to be channeling about $6 million a year into research, as recommended by Battelle.

IN addition to increasing its own research outlays, AGA is encouraging gas appliance manufacturers and individual gas companies to raise their research and development spending to levels urged by Battelle.

These are big figures, particularly in view of what the industry has been spending for research in the past. But they are not merely goals it would be nice to reach; they are goals which independent research experts say the gas industry will have to reach to keep pace with the competition.

It must be emphasized that there are many excellent research and development programs being conducted by a number of gas appliance and equipment manufacturers and gas companies. They present dramatic evidence of faith in the future of gas. These vitally important activities give the industry tremendous strength, and it is hoped these programs will become even stronger and more numerous.

Gas Will Meet Tomorrow's Challenges

WE are confident that the gas industry, spearheaded by AGA and other gas trade associations, will meet the technical challenge of the sixties. We will, in the next ten years, see more and more research and product development in every branch of the industry, more new and exciting equipment with which to capture the imagination of the consumer, and more exploration of the unknown or little-known areas of energy utilization which can open totally new markets for our products.

But beyond these current and projected programs in product improvement and sales promotion, what else can be done to strengthen the gas industry position in the energy race?

Let us make sure that our selling of gas does not end with advertising and promotion. Changing markets call for changing techniques, and today's market calls for a return to merchandising by the gas utilities.

Let me stress that utility merchandising is not and cannot be a substitute for a strong dealer program. In the retailing of appliances to the consumer, however,

only the gas utility today has the incentive to sell gas. Only the gas utility will put the emphasis on the "top-of-the-line."

Utility merchandising is our one assurance of making the sale at the point of sale. A total selling effort such as this—in promotion, in advertising, and in retailing—holds the key to the full potential of our residential load.

And, as others have said, we must convince every gas producer, utility, pipeline company, and manufacturer that the industry's problems are their problems also, that we are a national group of companies with a common purpose—and that purpose is to sell gas.

EVIDENCE on every hand indicates that we have moved into the sixties with more technical and promotional strength than we have ever possessed. But it should be obvious to all that the industry's intriguing prospects are not going to materialize just because we wish for them. A place in the sun must be earned, in this or any other decade. The future can be as magnificent and rewarding as our abilities, resourcefulness, and determination warrant—that much and no more!

IN other words, manna is not expected to fall from the heavens in the years ahead. Competition being what it is and promises to be, the rich fruits of the sixties will fall only to those who shake the tree the hardest. They will fall to the utility or fuel supplier making the greatest sales effort with the best product and the most superior service.

Gas industry leaders are certain that the accelerated tempo of product improvement and sales promotion will not only continue but increase, for all signs point to the new determination of the gas industry to win the race.

The keys to competition have been forged, and with them now in hand the gas industry will unlock the exciting potentials already visible in history's most competitive decade.

"THROUGH the dust of the fighting over the Republican platform, there dimly appears one issue which may yet be sharply drawn in the . . . campaign. It is the fundamental issue of the rôle of the federal government in the nation's economic affairs and the attitude of the government toward its own fiscal affairs. . . .

"Take the matter of economic growth. The Democrats say the government must 'create' the new abundance, that the economy 'must grow at an average rate of 5 per cent' come what may, and that the government itself must act 'to achieve this goal.' The platform on which Senator Kennedy stands puts growth and absolute full employment as the 'paramount' objective of government policy to which all else is subordinated.

"The Republicans flatly 'reject the concept of artificial growth forced by massive new federal spending and loose money policies.' They are bold enough to assert that 'the only effective way to accelerate economic growth is to increase the traditional strengths of our free economy—initiative and investment, productivity and efficiency.' "

—EDITORIAL STATEMENT,
The Wall Street Journal.

The Impact of Cost Allocations upon Future of the Natural Gas Industry

By HANS E. NISSEL*

Since World War II the expansion of the gas industry has been so explosive that it may have blinded some people to the fact that the favorable competitive conditions which have helped in this achievement are disappearing. A sound and economic development in the years to come will require careful and prudent planning on the part of the industry and judicious appraisal by the Federal Power Commission. The industry may easily get hurt by uneconomic expansions into new markets and into new types of service. This is particularly true of low load factor peak and winter services if such services are rendered at noncompensatory rates. Here is a review of the major issues in connection with cost allocations presented in recent rate and certificate cases with their economic repercussions.

HISTORY is replete with examples of large capital losses and bankruptcies in the utility and railroad industry resulting from management's failure to foresee the economic interplay of complementary and competing projects and to assess properly the uneconomic nature of certain promotional activities. The natural gas industry can avoid this risk only if all members of the family, comprising producers, transmission and distribution, work closely together, and keep the future of the entire industry in mind, instead of attempting to gain a temporary advantage for a particular company or segment of the industry.

The Federal Power Commission, on the other hand, because of its comprehen-

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sive jurisdiction under the Natural Gas Act, cannot escape responsibility, should the capital investment for which a certificate is granted prove uneconomic. Therefore, the commission is called upon to be more judicious in issuing certificates for new services and for the construction of new facilities, but less dogmatic and inflexible in its rate-making policy once the authorized facilities are in operation.

WHILE this is not the place for a detailed discussion of natural resources policies, it is suggested that in evaluating the desirability of extending natural gas service into new areas the proper utilization of such resources (fuel, steel, man power) should be considered. For economic reasons the energy resources of some areas might properly exclude natural gas, while others might exclude coal and, for stationary use, oil. The Federal Power Commission has recognized this fact in its Opinion No. 331 in the Midwestern Docket No. G-18313 et al. (31 PUR3d 37) where it adopted the following language of the staff's brief:

> Finally, there are certain areas of this country which are situated in unfortunate geographical locations in relation to the availability of natural gas. It is no fault of these areas that they happen to be victims of geography. On the other hand, the existing customers can hardly be required to pay excessive costs just to make certain that the areas which are located a great distance from the source of supply may have the benefits of natural gas service. The hard realities of such circumstances are that those areas must be willing to pay the costs associated with obtaining natural gas service or be satisfied with other fuels which may be less desirable but which may be more economical to purchase than natural gas. (Page 25.)

WITHOUT attempting to give a complete history of the natural gas industry, the following facts must be recalled. Because of the favorable price differential with respect to competing fuels—and one should not forget that gas faces more competition than any other public utility service—the clamor for natural gas service was unprecedented during the postwar years. This favorable relationship resulted from the fact that coal and oil prices soared during the war, while natural gas rates remained stable.

The natural gas rates in effect at the time were relatively low because ample gas supplies could be purchased in the Southwest at advantageous prices and transmitted to market at low cost resulting from inexpensive pipeline construction and high load factor operation. Such economic operation was guaranteed by the conditions of the rate schedules obligating purchasers to maintain a high load factor by the use of peak shaving facilities, by the development of underground storage fields, and by off-peak and interruptible sales for boiler fuel and industrial processes.

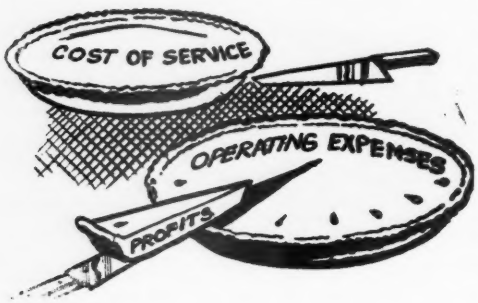
TODAY the situation has radically changed. The margin between the price of natural gas and competitive fuels at the point of use has narrowed considerably and in many cases disappeared. The reasons for this change are the substantial increase of the field prices of gas and higher transmission cost per Mcf caused by rising construction cost, operat-

ing expenses, and taxes. This situation is aggravated by the desire of some distribution companies to purchase gas at low load factor so as to supply their growing space-heating load without using peak shaving facilities or balancing it by industrial off-peak sales. Since transmission facilities operating at such low load factor are idle most of the year, the economic impact can be very serious.

Some pipeline companies have acceded to this request by offering low load factor peak or winter service at a level considerably below that produced by the regular demand-commodity rates and have attempted to justify such preferential rates by various kinds of "cost allocations," the validity and propriety of which are very much in dispute. The proceedings dealing with the certificate applications for these rates and several rate cases in which controversial rate schedules are at issue[1] have focused interest upon the theories and principles underlying the cost allocations[2] which are the crucial evidence affecting the decision.

Cost Allocation in Rate and Certificate Proceedings

THERE is a basic difference between a cost allocation required by the Federal Power Commission in a rate case and in a certificate proceeding. In a rate case, the total cost of service must be allocated among zones—if there are rate zones—and rate schedules.



In a certificate proceeding there are no hard and fast rules. If no new rate schedule is involved, it is generally sufficient to show that the incremental revenue under existing rates will cover the incremental cost of service of the additional facilities. If a new rate schedule is involved, the cost allocation is based frequently on cost of specific facilities which are claimed to be used in rendering the particular service for which approval is sought. In such cases, the amount allocated depends on the theory which underlies the selection of the facilities alleged to be required for rendering the service.

The Atlantic Seaboard Method

FOLLOWING the precedent set by the staff of the Federal Power Commission, the majority of cost allocations presented in FPC proceedings are based on what is generally known as the Atlantic Seaboard method. Under this method only 50 per cent of fixed transmission and underground storage costs, comprising depreciation, return, taxes, and fixed operating expenses are classified as demand cost and allocated on the basis of peak responsibilities, generally the sustained three-day peak period. The other 50 per cent of fixed transmission and underground storage costs, as well as *all* fixed production costs, are classified as commodity cost and allocated together with the variable costs on the basis of annual volumes delivered. Cost classified and al-

located as demand and commodity cost is in most cases translated directly into the demand and commodity charge, respectively, of the rates. This allocation procedure, while used in earlier cases, is crystallized in FPC Opinion No. 225 in the Atlantic Seaboard case at Docket No. G-1384 et al. and has taken its name from that proceeding (1952)94 PUR NS 235.

NOTWITHSTANDING attempts at a more sophisticated rationalization of this unorthodox cost classification, its admitted purpose was the allocation of fixed costs to off-peak and interruptible customers cut off during the peak period, which under the peak responsibility allocation would get a "free ride"; *i.e.*, would not be allocated any fixed costs, if all fixed costs were classified as demand cost. This is quite evident from the following statement made in Opinion No. 225:

> If fixed expenses are assigned wholly to the demand or capacity function, then gas service which is interrupted on peak days will not share in any of the fixed costs. Conceivably under such an allocation large quantities of natural gas could be sold to industrials 360 days of the year and interrupted on five or so peak days, and such gas would bear none of the costs incurred in constructing the pipeline facility. In other words, under a strict application of this theory, the interruptible service would not bear any depreciation expense, return, income taxes, or any part of the other fixed expenses associated with the capital outlay. (Page 21.)

In the opinion of this writer it is perfectly proper for interruptible customers to bear a share of the fixed costs of the system, the very existence of which makes interruptible sales possible. However, such share cannot be determined by the arbitrary misclassification of fixed cost which violates long-accepted standards and principles of cost behavior.[3] It is signifiant that in a recent opinion of the Federal Power Commission, the 50-50 classification of fixed costs was characterized as "never more than an educated guess."[4]

The Mcf-mile Method

IN several cases involving zone rate differentials, the FPC staff has advocated the so-called demand-mile, commodity-mile, or Mcf-mile allocation.[5] This procedure adopts generally the classification of the Atlantic Seaboard method, but multiplies the peak responsibilities and annual deliveries of each customer, which are used as allocation volumes, by the miles of haul from the point of supply to the point of delivery. The cost allocated to a particular customer per Mcf/day of peak responsibility and per Mcf of annual delivery increases, therefore, in direct proportion to distance of haul.

Defects of the Atlantic Seaboard Classification

THE Atlantic Seaboard method has a number of defects which seriously impair its accuracy.[6] Fixed costs by their very nature do not vary with the volume of gas handled. Whether a pipeline having a capacity of 1 million Mcf/day transmits 30 million Mcf or 300 million Mcf annually the fixed costs are exactly the same. By allocating a large portion of

fixed cost in proportion to annual volumes, the Atlantic Seaboard method charges high load factor customers, using large annual volumes in relation to their maximum daily requirements, considerably more fixed costs than low load factor customers having the same maximum requirements and hence causing the same fixed cost. Pipeline customers generally achieve high load factor operation and thereby optimum use of the transmission facilities provided for them by considerable investment in underground storage and peak shaving facilities. They incur, therefore, substantial expenses in making high load factor purchases possible.

By overcharging high load factor purchasers, the Atlantic Seaboard method and rates based thereon doubly penalize such purchasers and their ultimate consumers by making them pay not only an excessive rate for gas purchased, but also the cost of their own facilities making high load factor purchases possible. In other words, such ultimate consumers are subsidizing in two ways the ultimate consumers of low load factor purchasers, resulting in a serious case of undue discrimination.

On systems where the load factor of all customers is fairly uniform and there are no interruptible deliveries, the Atlantic Seaboard method does not seriously distort the cost allocation as far as the total amount is concerned. In fact, if the load factors of all customers are exactly the same, there is no distortion because annual volumes are in the same proportion as the maximum requirements. However, the distortion becomes serious when several customers operate at different load factors. This may be explained with reference to the following example:

If there is a pipeline with a capacity of 1 million Mcf/day serving two customers, A and B, each requiring 500,000 Mcf/day, but A operating at 100 per cent load factor and B at 25 per cent load factor, customer A receives an annual volume of 182 million Mcf, but customer B only of

45,625,000 Mcf. The 50 per cent of fixed costs classified under the Atlantic Seaboard method as demand cost are shared half and half, but the 50 per cent classified as commodity cost is shared in the proportion of 182.5 million to 45,625,000, or 4 to 1. The result is that customer A bears 65 per cent of the total fixed costs, whereas customer B bears only 35 per cent, notwithstanding the fact that each customer uses 50 per cent of the capacity which causes the fixed costs incurred. The distortion becomes particularly serious where peak service and winter service rate schedules are involved operating at very low load factor against CD or DCQ service rendered at 100 per cent load factor.

In the Tennessee certificate application for peak service in New England at Docket No. G-11107, for instance, the estimated load factor of this service was only 8 per cent. If a 100 per cent load factor customer shares transmission capacity with an 8 per cent load factor customer having the same maximum requirements, the Atlantic Seaboard method allocates fixed cost to these two customers in the proportion of 71 per cent to 29 per cent. This characteristic effect of the Atlantic Seaboard method creates in certificate proceedings frequently the deceptive impression of the economic feasibility of low load factor services which could not be demonstrated by an objective and correct cost-of-service determination.

On the economic side, the inclusion of a large portion of fixed cost, particularly of return and taxes, in the commodity charge tends to introduce a great deal of instability into the earnings of the industry. On systems with considerable space-heating load, the effect of a warm winter can be quite serious. To limit this risk, the rate schedules of many pipelines provide a minimum take-or-pay clause for the commodity charge. This would be unnecessary if the demand charge of the rates were adequate.

The inflated commodity charge resulting from the Atlantic Seaboard classification has also the ill effect that it exceeds in many instances the value of service of certain industrial applications served under interruptible rates. Pricing such sales out of the market would deprive space-heating customers of the relief derived from the contribution to fixed costs made by off-peak and interruptible industrial sales.

Finally, rates having a low demand charge and high commodity charge fail to make peak shaving by the distribution companies economically attractive and thus foster low load factor operation of transmission facilities. Since such facilities remain idle most of the time, the economic impact is likely to be serious in the long run.

Beyond the stated reason for the Atlantic Seaboard method set forth above, it may have been motivated by one of several other considerations—to shift costs from jurisdictional customers to the nonjurisdictional interruptible business; to discourage boiler fuel sales by a high commodity charge; or possibly to share system-wide the benefits of underground storage fields owned by some purchasers. Today, however, the method seems, irrespective of its origin, to have become one of administrative convenience. This appears to be a strong reason for the

commissions reluctance to modify or abandon the method, despite great dissatisfaction with it.

Fortuity of Peak Period

ANOTHER defect of the Atlantic Seaboard method derives from the fortuity of the "sustained three-day peak" generally used by the staff as the basis for allocating demand cost. Due to weather conditions and accidental factors, such peak is often not representative and deviates substantially from planned operation, thus changing drastically the allocation factors. This was highlighted in the Tennessee rate case at Docket No. G-11980 where three parties used three different peak periods during which deliveries in one zone were 140,000 Mcf/day, 164,000 Mcf/day, and 206,000 Mcf/day, respectively. All three peaks fell within three weeks, and the first two within one week.

If capacity provided for satisfying space-heating requirements is not needed for this purpose, during a warm winter, it is possible to deliver substantial volumes of gas to interruptible customers during the "sustained three-day peak" which has a great effect upon the allocation of demand cost to such customers. The fact that restrictions on interruptible deliveries may be relaxed during a warmer period, but must be strictly enforced during a cold spell in order to safeguard deliveries to firm customers, can also result in a three-day peak at a time when firm deliveries are considerably below maximum. Under all such conditions, interruptible customers are allocated more than their proper share of fixed cost.

A serious drawback of the Atlantic Seaboard method with respect to interruptible customers is also the fact that the allocation per Mcf is exactly the same whether the customer obtains full service on all days of the year except during the three-day peak, or is a dump customer receiving gas only during a few weeks in midsummer. However, if for any reason deliveries are made during the three-day peak, the allocation suddenly jumps by leaps and bounds and even exceeds the amount per Mcf allocated to 100 per cent load factor customers.[7]

A cost allocation based on peak-day deliveries subject to such fluctuations and happenstances yields erratic and improper results. A more reliable and consistent basis than the time-honored three-day peak should be used for determining cost responsibilities in such cases.[8]

Defects of the Mcf-mile Method

THE Mcf-mile method used for zone cost allocations has all the shortcomings of the Atlantic Seaboard method resulting from the classification of fixed cost and the choice of the peak period. In addition it has the serious defect that

it reflects distance *only* and ignores that transmission unit costs per mile are affected also by several other factors. As is well-known, transmission unit costs, under otherwise comparable conditions, increase as the pipe diameter decreases. This follows from the fact that construction costs are about in direct proportion to the pipe diameter but capacity about in proportion to the square of the diameter. It goes without saying that unit costs are also generally increased by the existence of excess capacity.

In consequence, the Mcf-mile method can yield accurate results only where all these factors—*i.e.*, pipe size, use of available capacity, and load factor—are uniform. Where such uniformity does not exist, the Mcf-mile method is bound to distort the results by allocating too much cost to zones operating under favorable conditions and vice versa.[9]

What the Industry Has Done

In view of the persistent repudiation of other methods by the Federal Power Commission, industry witnesses have generally used the Atlantic Seaboard classification between demand and commodity cost, and the peak responsibility method for allocating demand cost. However, they have frequently done so under protest, or they have deviated from the staff's procedure in classifying certain cost elements and in the choice of the peak period used as the basis for allocating demand cost.

While generally following the Atlantic Seaboard method in classifying and allocating cost, a number of pipeline companies design their rates for various reasons so as to recover more dollars through the demand charge than the amount classified as "demand cost."[10] This adjustment improves the rate structure but cannot correct the improper allocation of cost among rate schedules and jurisdictions.[11]

In zone rate cases, the industry has frequently allocated cost on the basis of the so-called zone-gate or zone-by-zone approach which is based on cost actually incurred within each zone and allocates such cost to the zones making use of the respective facilities. However, in most instances, the Atlantic Seaboard classification was maintained with all its defects and distortions and the three-day peak with its fortuity.[12] While the propriety of the zone-gate method is generally recognized by cost accountants and rate engineers, the Federal Power Commission appears to be unconvinced, as was confirmed recently by the El Paso Opinion No. 326 (1959) 29 PUR3d 469, in Docket No. G-4767.[13]

Cost Allocation and Rate Design

The record in rate proceedings before the Federal Power Commission discloses a basic misconception with respect to the scope and purpose of a cost-of-service study. Many cost allocations presented in rate cases, including those of the FPC staff, instead of being objective and accurate cost-of-service determinations, are only formulae for spreading total cost among zones and rate schedules in order to arrive at what the sponsor considers in his subjective judgment to be "fair and reasonable" rates.

It must be recognized that cost analysis and rate design are two distinct and separate steps of the rate-making process.

Cost analysis is a science based on objective standards and principles of cost behavior. It can be made with considerable accuracy and without arbitrary "juggling" of costs. Rate design, on the other hand, is an art requiring subjective judgment in weighing other factors besides cost of service.

Without minimizing the weight to be given to other factors, it should be recognized that it is necessary to determine cost of service as an objective standard by which to measure the fairness and reasonableness of rates. Expressed differently, if no other factors were to be considered, the most fair and reasonable rates would equal cost of service. Cost of service should therefore be taken as the starting point, and judgment be used in weighing the other factors which make a departure from cost of service necessary when designing rates.

HOWEVER, the staff of the Federal Power Commission and, following its lead, a broad segment of the industry have telescoped into one continuous operation the two distinct and separate processes of cost analysis and rate design. Instead of making the cost analysis a fact-finding procedure and using judgment in designing rate, "judgment" is used in the arbitrary classification and allocation of fixed cost, the choice of the peak period which determines peak responsibilities, and the exclusion of all factors but distance in zone-rate cases. Rates are then derived mechanically by carrying out the arithmetical computation. Such "cost allocations" deprive the Federal Power Commission and the courts of an objective standard by which to judge the fairness and reasonableness of the rates; namely, actual cost of service.

By their simple arithmetic, the Atlantic Seaboard and Mcf-mile methods create the mistaken impression of accuracy or at least equity.[14] This impression appears to lend psychological support to the conclusion that the rates directly derived thereby are fair and reasonable. As we have shown, this is not the case under certain circumstances. While this result is serious in a rate case, it can be disastrous in a certificate proceeding.

BY resulting in an unrealistically low initial rate, these methods often create the mirage of economic feasibility and can lead to the certification of facili-

ties and rate schedules which cannot be supported by the assumed market at a properly designed and not unduly discriminatory rate. Once the facilities are installed, it is too late to repair the damage, and by some other kind of cost allocation total cost of service is distributed in the next rate case by equally simple arithmetic in such a manner that there exists no apparent deficit. This can only be achieved by shifting cost to existing customers which are thereby required to subsidize the uneconomical service.

The accurate determination of cost of service is, therefore, of particular importance in certificate proceedings for the protection of existing customers.

Underground Storage Is an Integral Part of System Capacity

A PIPELINE transmission system must be designed to meet the requirements of its customers in the most economical manner. If the sales pattern results in an operating load factor of less than 100 per cent, which is the case on practically all systems, the most economical manner to meet such requirements is by a combination of pipeline flow capacity and underground storage capacity. Thus, underground storage capacity becomes an integral part of the total system capacity which is required for satisfying total system requirements.

As a matter of design and operation, system capacity is indivisible, and it is impossible to identify a specific part of the total capacity with the requirements of a particular customer. Thus it cannot be said which customer is served on a particular day by pipeline flow capacity and which by storage capacity, and which customer is served by the capacity provided by a particular pipeline loop or by the capacity provided by the pipes themselves and the compressors, respectively, or which customer receives gas from a particular production field.

IT has been claimed sometimes that a 100 per cent load factor customer should not bear any underground storage cost, because underground storage operation would not be possible if all customers would purchase gas at 100 per cent load factor. While this is theoretically the case, it is also true that most of the large pipelines could not have been developed and could not operate underground storage without their high load factor customers. In the first place, CD and DCQ customers, by maintaining a high load factor, made the construction and development of the pipelines economically feasible, supported them until they reached the underground storage fields, and paid for underground storage in their rates even before underground storage capacity was fully used. It is therefore no more than fair that they should also share in the benefit of the less expensive storage capacity as against high-priced pipeline transmission capacity.

Another frequently overlooked fact is that high load factor customers located downstream of storage are often vital for the operation of underground storage because they constitute during peak periods an outlet for gas withdrawn from underground storage, thereby making pipeline transmission capacity available by displacement to low load factor customers located upstream of storage.

For all these reasons, it is proper, and

until recently was customary in proceedings before the FPC, to treat underground storage capacity as being of use and benefit to the whole system and to charge a proportional share of underground storage cost to all customers on an equal basis.

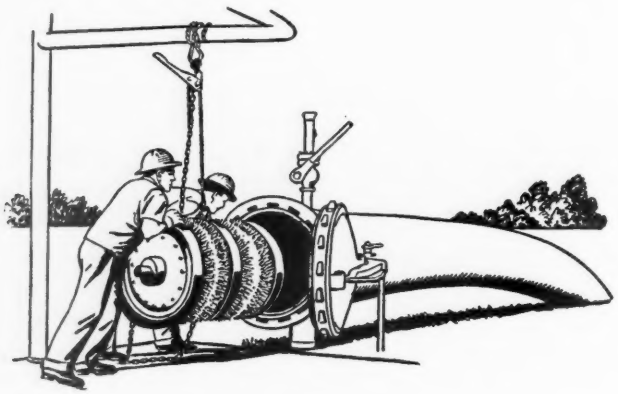
The Storage Segregation Theory

As mentioned before, several pipelines have offered in recent years peak winter or storage service for low load factor operation.[15] Since the services are offered at a price substantially below that resulting at the same load factor under the standard demand-commodity rate, the usual system-wide rate case type cost allocations would not support the low initial rates proposed in these proceedings.

Novel cost allocation procedures have been advanced to justify the proposed price levels; while they differ widely in technical details, the common theory is that these services are rendered exclusively from segregated underground storage.

Evidence presented in these proceedings shows that underground storage is physically not operated in accordance with the requirements of these privileged services, but as an integral part of the system capacity, which confirms the principle of the indivisibility of capacity referred to earlier. The dedication or preemption of underground storage for such special services, which are frequently rendered through the same meter as service under regular rates, is, therefore, an assumption contrary to fact.

The principle of the indivisibility of capacity is generally accepted by the industry and the Federal Power Commission and is reflected by the insistence on rolled-in costs in rate case proceedings. If capacity could be divided, customers of long standing would be entitled to the lower-cost gas reserves and highly depreciated transmission facilities acquired and constructed many years ago, while new customers would have to bear the higher cost of gas reserves and transmission facilities of recent vintage. What is proper for production capacity and transmission capacity, respectively, applies also to the capacity provided jointly by pipeline and storage facilities.



Since annual fixed unit cost of underground storage is of the order of magnitude of $10 per Mcf/day and of pipeline transmission capacity of $50 per Mcf/day, cost allocation on the basis of segregated underground storage is very favorable to these special services to the detriment of other rate schedules.

Cost allocated to such services is further minimized by a number of other devices in order to create the impression that they are economically feasible at the proposed rates. However, the record in all these cases strongly suggests that the rate was derived on the basis of competitive peak shaving cost and that the so-called cost allocation was tailor-made in order to justify the predetermined rate. Or as Examiner Hall stated in his decision denying the certificate for peak service in Tennessee Docket No. G-11107:

> It is clear that what Tennessee has done is to carve out of its total cost of service and assign to peak service only such costs as tend to indicate that the proposed level of rates for peak service is reasonable. Before carving out the cost allocated to peak service Tennessee was aware of the fact that the New England customers would only purchase peak service if the cost thereof was less than gas produced through utilization of their peaking facilities. Accordingly, the proposed rate was tailored to meet this condition. This, however, is not a method of decision authorized by the Natural Gas Act for determining a "just and reasonable" rate for "top-of-the-peak" low load factor service.

Evidence presented in other proceedings supports Examiner Hall's statement.

If peak or winter services, which sometimes require the investment of tens of millions of dollars, were certificated at rates supported by such shaky evidence, the economic effect upon the pipelines and their existing customers could be very serious indeed.

Conclusion

The foregoing discussion on the principles and techniques of cost allocation procedures adopted by the Federal Power Commission, or being advocated by some segments of the natural gas industry, has sought to point out some of their more glaring defects and inadequacies. It is the writer's belief that such defects and inadequacies if not corrected in future proceedings would result in serious economic repercussions on the whole gas industry.

Cost behavior does not change by mere administrative fiat. The high fixed costs of a pipeline system do not disappear by being treated as if they were variable, so as to minimize the apparent capacity cost and thereby seemingly justify marginal services and expansions. Such self-deception cannot be indulged in without running severe risks, especially in an industry which has to compete in all areas with other sources of energy. The same applies to the segregation of certain facilities for cost allocation purposes which is contrary to fact and only used as another device to the same end.

It is urged that objective and realistic procedures be adopted by which the in-

dustry and the commission can be fully advised of the actual cost incurred in providing capacity for the service rendered. It is only on the basis of such knowledge that informed judgment can be exercised as to the economic feasibility and soundness of expansions proposed or the propriety of rates applied to various services.

Footnotes

[1] El Paso Natural Gas Company, Docket No. G-4769, United Gas Pipeline Company, Docket Nos. G-9547 and G-10592, Tennessee Gas Transmission Company, Docket Nos. G-11107, G-11980, G-18877 et al., Texas Eastern Transmission Corporation, Docket Nos. G-12706, G-18841, and G-18969 et al.

[2] The term cost allocation is used here in the broad generic sense of cost-of-service determination, as well as the spreading of costs on the basis of some conventional formula.

[3] Allocation of fixed cost to off-peak and interruptible customers can be achieved in a manner consistent with the character and behavior of such cost, for instance by the capacity credit method which was proposed by this writer and described in *The American Gas Journal,* October 15 and November, 1953.

[4] Opinion No. 320, page 3 of Commissioner Connole's concurring opinion (1959) 28 PUR3d 380.

[5] Northern Natural Gas Company, Docket No. G-2217, Opinion No. 281 (1955) 9 PUR3d 8. Tennessee Gas Transmission Company, Docket No. G-11980.

[6] "Is FPC Gas Cost Allocation Equitable?" by Larry Shomaker, PUBLIC UTILITIES FORTNIGHTLY, Vol. L, No. 10, November 6, 1952, p. 680.

[7] This is avoided by the capacity credit method (footnote 3) under which curtailments control the allocation of fixed costs.

[8] Examiner Simpson acknowledges this fact in his decision issued March 20, 1958, in the El Paso rate case at Docket No. G-4769 in accepting billing demands instead of the three-day peak which he did not consider representative (pp. 51, 52).

[9] In the Tennessee certificate application for peak service in Docket No. G-11107 evidence was presented which showed that transmission unit costs on that system differ so much among zones that the Mcf-mile method allocated to one zone less than 20 per cent of the cost actually incurred.

[10] This process has been misnamed "tilting." It actually represents a partial correction of the misclassification of fixed costs under the Atlantic Seaboard method.

[11] Departing from Opinion No. 228 in Re Northern Natural Gas Co. (1952) 95 PUR NS 289, which supplements the Atlantic Seaboard Opinion No. 225, Chief Examiner Marsh in his decision issued June 30, 1960, in Cumberland & Allegheny Gas Company, Docket No. G-17226, permitted the classification of fixed production cost 50 per cent to demand and 50 per cent to commodity.

[12] The fortuity of the three-day peak has the same effect, whether the Mcf-mile method or zone-by-zone approach is used.

[13] "Some Observations on the El Paso Decision," by Richard A. Rosan, PUBLIC UTILITIES FORTNIGHTLY, Vol. 64, No. 8, October 8, 1959, 582.

[14] The doubtful claim of simplicity sometimes made for the Atlantic Seaboard and Mcf-mile methods certainly does not justify the acceptance of their defects.

[15] Tennessee Gas Transmission Company, Docket Nos. G-10804, G-11107, and G-19042; Texas Eastern Transmission Corporation, Docket Nos. G-18969 et al.

"NO industry is in a position to make a greater contribution to the growth of Canada's economy than the gas industry in all its segments . . . since 1954 gas reserves have more than doubled to a figure of 30 trillion cubic feet. The trends of discovery of reserves have been most encouraging and the National Energy Board estimates that the drilling of some 400 wildcat wells per year will increase initial disposable reserves to approximately 92 trillion cubic feet by 1989. . . . As additional supplies of gas surplus to Canadian requirements become available, they will, no doubt, find a market with our friendly neighbors to the south."

—IAN N. McKINNON,
Chairman, Canada's National
Energy Board.

Gas Air Conditioning Moves Ahead

By G. T. KELLOGG*

With research continuing and with the promotion and advertising efforts of the AGA, along with the growing number of gas companies throughout the country which are joining the movement, gas air conditioning is definitely going ahead.

FIGHTING an uphill battle aganst already established electrically powered air conditioning, gas cooling of homes and commercial and industrial establishments has come a long way in the few years that it has been pushed actively, but admittedly it still has a long way to go.

To be sure, gas air conditioning for larger commercial and industrial installations has been available for perhaps thirty years, but the units were virtually all custom jobs producing up into the hundreds of tons of cooling. It really was not until four or five years ago that the smaller, residentialized equipment which had been developing over the years caught the fancy of the gas utility industry and the "big push" began.

It was not whimsy, but grim reality that brought the gas industry to a realization that it had better get behind gas air conditioning—particularly for the vast residential market—to develop its summer market. Let us look, briefly, at the picture before considering what has happened since that first awakening.

IN the early 1950's, gas was moving toward a goal, since achieved, of becoming the primary source of comfort heating. As such, it had greater and greater winter peaks, followed by comparatively lower and lower summer valleys.

Meanwhile, air conditioning—in the early years, mostly room units—was beginning to become a factor in the increasing summer load of the electric utilities,

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and in 1956 for the first time many utilities had higher peak days in the summer than in the winter. This required additional power-producing capacity, so, to justify such capacity, the "electric people" eyed heating as an outlet for the additional power capacity during the non-cooling months. How rapidly this little summer peak has grown since 1956 is well-known—and the cooling load now is augented by more than a million centrally air-conditioned homes, plus all the commercial and industrial establishments that are air conditioned—all this in addition to the more or less steady increase in sales of the room units which started the spiral in the first place.

At the same time, the gas industry had the same problem in reverse, and wanted to fill up the summer valley—still does, as a matter of fact—while maintaining its ascendance in the winter heating field.

But prior to about 1955 it was somewhat difficult, apparently, for the gas industry to grasp the potential represented by air conditioning. In that year, James H. Collins wrote an article titled "'Air Conditioning' Is Bigger than We Think," in PUBLIC UTILITIES FORTNIGHTLY, in which he pointed out:

> Utility company support of the appliance industry has not been too enthusiastic, basically because utility sales departments have not been cultivated and as aggressively managed as those in the competitive utility. Two conflicting policies are blamed for gas sales problems: some gas companies selling appliances themselves, and others building strong appliance dealer organizations. This is a sort of two-stool proposition, where some companies are undecided about policy, and may not put selling "umph" behind appliances.[1]

But the overall industry, as represented by the American Gas Association, was giving the problem some thought, and a Gas Air-Conditioning Promotion Committee was a-borning (as manufacturers and researchers kept up with their work of developing new and better gas-powered air-conditioning equipment). Even before the appointment of the committee, AGA was doing some research on its own, and subsidizing research projects in a number of outside laboratories for the development of gas air-conditioning apparatus.

And Now What?

This is the historic background. Where is gas air conditioning today? As already indicated, it is moving along, and has captured a not inconsiderable percentage of the market, but, to continue to increase its share, it—meaning the gas industry—must accomplish several distinct objectives, according to a group of people within the industry itself who spoke in April at an AGA Research and Utilization Conference in Cleveland.

Among these objectives: The industry must develop air-cooled units; a lower first cost must be obtained; a fuller line of products, covering intermediate tonnages, must be developed; many potential consumers are not even aware that gas air conditioning exists—this will require even greater promotion than has

[1] "'Air Conditioning' Is Bigger than We Think," by James H. Collins, PUBLIC UTILITIES FORTNIGHTLY, October 13, 1955, Vol. 56, No. 8, p. 648.

been used in the past several years; and there is a noise problem. Gas equipment is not unique in this, however. Electrically operated conditioners have a similar difficulty, but it comes from another source.

Complaints against engine-driven equipment come as frequently from neighbors as from owners, because the condensing units are usually mounted outdoors—just as condenser-blower noise brings complaints from electric units. This noise problem is being attacked by muffler systems—sometimes with the muffler buried in the ground.

WHILE proponents of engine-driven equipment insist that sound levels from their equipment are no higher than from electrical units, and that "where noise is a real problem, neither unit can be used," the fact is that users and observers are almost unanimous in the opinion that the gas-fired compression systems are noisier than their electrical counterparts, but that the units can be sold over these objections because of their other advantages.

Surprisingly, absorption equipment, "with no moving parts," comes in for a noise complaint, too. This is true chiefly of the lithium bromide unit, which makes a crackling, percolating sound when it starts up. The sound is explained as being traceable to the collapse of vapor bubbles which are generated at the point of flame intensity and travel to areas of colder solution. The fact that all of this takes place in a high vacuum intensifies the collapsing crackle. Once the solutions are at operating temperatures, the crackling stops.

Steps are being taken to retard this noise complaint also. For one thing, "sound suppression kits" are being supplied by the manufacturer, and for another, some contractors are experimenting with cycling the unit burner just enough to prevent the solutions from getting so cold that they cause collapse of the vapor bubbles.

Gas Conditioning Making Headway

IN spite of these self-assessed shortcomings the industry is moving ahead. In 1959, according to an industry spokesman, the ratio of gas to electric central residential air conditioners sold was 1-to-17.5, and for 1960 the industry is (or was a few months ago) forecasting that a ratio of 1-to-9.5 is a possibility, and some of the more optimistic promoters of gas air conditioning foresee a ratio of 1-to-3 by 1964. Growth to date already has disproven to a degree the skeptics who were ridiculing such a possibility a few short years ago.

Since 1957, almost 30,000 residential-size central units[2] have been sold, and the

[2] Even the most enthusiastic boosters of gas air conditioning can foresee no development which will permit the industry to produce gas units of room size, a market which appears to be perpetually closed to gas. But with the growth of central residential installations, there is some thought that the room cooler market may become less important.

manufacturers of these and other sizes are introducing new lines and expanding sales at a rate which, if it continues, will soon make them major factors in an industry where they now can claim from 4 to 6 or 8 per cent of the market.

All this in the face of a short line of products, high first costs, public indifference (or lack of knowledge that gas air conditioning exists), plus the fact that an early field test resulted in what has been termed "mass failure."

A brief description of this test may be in order. When the gas interests once began to realize the importance of air conditioning to their well-being, the first thought was that gas engine-driven compressors would provide the quickest and best entry (and there are many who still hold that this is "the" gas air-conditioning application).

At any rate, several hundred gas engine-driven air conditioners were put in around the country and, partly because engine and compressor were rather hurriedly matched, partly because know-how was still not so large in scope as it might have been (and has since become), but mainly because too many units were installed out of reach of adequate service and maintenance, many of them failed.

While the unit which was used for this forlorn test is no longer in production, present-day manufacturers are still having difficulty with the notoriety gained in it, and the damage to the image of small tonnage engine air conditioners is still being repaired.

Some Problems, Advantages, and Disadvantages

PROBLEMS peculiar to gas engine-driven compressors are the handling of the great torque on the coupling when the unit starts up; the collection of refrigerant in the engine crankcase, and the subsequent flushing out of all oil on start up, with a resulting engine seizure before the refrigerant can travel through the system piping and return; the need for inspection of oil, spark plugs, ignition points, engine coolant water; the need for exhaust control mufflers, and the greater, or at least "different" sound level of an engine-driven condensing unit.

Gas industry hopes for a heat pump, to compete with the electrically driven reverse-cycle unit (one of electricity's challenges for the winter load market), seem to have their strongest pivot in the perfection of small gas engine-driven equipment. Since the compression side of the system is a conventional refrigeration cycle, reverse-cycle operation may be readily applied, and supplemental heat requirements may be met by capture of engine and exhaust heat. A few engine-driven heat pumps have been tested, but as yet none has been made generally available.

PROPONENTS of engine-driven equipment utilizing the conventional refrigeration cycle point to its advantages: Such units offer capacity control by varying the speed of the engine, even though the compressor has fixed capacity; lower operating costs than absorption gas systems and than electrical units in most areas; application without the necessity for additional wiring or other electrical service.

(Gas industry sources supply these "average" or general figures for consumption

of fuel: gas engine-driven units—13,000 British thermal units per hour [Btuh] per ton; absorption units—24,700 to 25,700 Btuh per ton; turbine-driven centrifugals [big system-type jobs]—18,000 to 27,000 Btuh per ton of cooling.)

In the larger tonnages, one of the biggest manufacturers of engine-driven equipment has been able to overcome many of the disadvantages, and capitalize on the advantages, of this type of unit, but the costs are relatively high, and not economic for application to smaller tonnage equipment. Many in the industry consider it significant that this leading company in the field has consistently declined suggestions that it market residential-size equipment.

The lower operating costs are a strong factor where the units are run more than about 2,000 hours per year, but hardly enough of a factor to overcome the objection of high first cost where normal annual operation is but a few hundred hours.

Advocates of this type of equipment are looking to research projects aimed at eliminating, or minimizing, its high-service characteristic so as to achieve the "one service call a year" goal. AGA research projects are seeking to develop long-life engines for use with air conditioners, research which has resulted in the use of an adaptation of an existing engine in some cases. "Yet," points out one AGA executive, "it strikes me that we would do better to design an engine with air conditioning in mind from the start, rather than continuing the attempts to adapt existing industrial engines."

On this score, there are strong hopes the highly publicized free-piston compressor, which went into prototype units this year, may provide the necessary shot in the arm for engine-driven units.

In spite of these hopes, however, there is a vocal group within the industry believing that gas engine equipment will never be a major factor in the residential and small commercial air-conditioning field. They believe that absorption air conditioners will provide the entry of the gas industry into a position of strong contention—and as of now the weight of evidence, in the realm of actual sales, bears them out. The two major (in fact virtually the only) producers of residential absorption equipment fore-

see total 1960 sales of perhaps 15,000 units this year (somewhat short of an optimistic AGA forecast of 25,000), and the sales of residential gas engine equipment will not top 2,000 units, according to estimates made in midyear.

Absorption Air-conditioning Story

THE story of absorption-type residential air conditioning is so tied up with the two companies which dominate the field, to date, that it can best be told in terms of their experiences.

Although there had been experimentation and research in the field prior to 1957, the entry of Arkla Air-Conditioning Corporation that year, with 3.5-ton and 5-ton residential units, really marks the start of the story. Arkla, formed as a subsidiary of a gas utility, the Arkansas Louisiana Gas Company, perfected a direct-fired lithium-bromide absorption system developed by a defunct company, and by contacting other gas utilities and the industry generally to subsidize the merchandising of the first units, got them off the ground.

Since purchasing the assets of the defunct company (Servel) in 1957, Arkla has experienced a 400 per cent increase in sales. It was a year or more later that the second entrant into the field, Bryant Manufacturing Company, introduced its 3-ton ammonia-water absorption unit, and it has since brought out a 4.5-ton unit.

The acceptance of this absorption equipment gives gas interests reason for optimism. A survey conducted by *Air-Conditioning, Heating, and Refrigeration News* this spring found customer satisfaction high, and incidence of service relatively low. The sales achieved by these two leaders were, of course, aided by dynamic utility merchandising help, as well as the spreading practice on the part of gas utilities to offer low summer gas rates to attract cooling customers.

UNITS of both manufacturers suffer from a general unfamiliarity with servicing techniques, but this situation is improving. Another disadvantage is their size—a drawback that appears to be inescapable, since the several solutions in the cycle move through the unit only by gravity and by pressure differential, requiring that minimum heights and distances must be maintained between elements to assure this movement.

Another disadvantage, already pointed out, is the higher first cost of these units than of electric equipment of comparable capacity. Manufacturing costs are high, since absorption units appear to the nontechnical viewer as a maze of welded tanks and joints. It is felt unlikely that, even with high-volume production, the cost can be reduced to make the units directly competitive at first cost.

Absorption advocates counter this objection by pointing out that this type of equipment can be expected to last for fifteen to twenty years, and that no one component or repair job on the units can possibly approach the approximate $100 per ton cost of replacing a compressor after a half-dozen years (their own estimate).

Some Standards Have Been Developed

IT is significant in terms of the "coming-of-age" of these absorption units that the Air-Conditioning and Refrigeration Institute, trade association of the indus-

try, has developed an ARI standard for "heat-operated" equipment in residential and small commercial sizes, and that the two manufacturers are both participants in ARI's program for the certification of such units.

The certification program counts as participants the makers of more than 90 per cent of all "unitary" equipment in the country—both electric and gas operated—and provides that all certified units must meet performance tests as specified in the ARI standards. Capacities of units are stated in terms of British thermal units, or equivalent tons (12,000 Btu per ton), and are subject to rigorous tests to assure performance as claimed by their manufacturers.

AGA, too, has developed a standard for gas-fired absorption equipment, and standards are being developed in the association's research laboratories for engine-driven compressor systems. Designated Standard Z21.40-1959, the absorption standard is "designed to assure safe and efficient performance and substantial and durable construction of equipment." The document covers such items as accessibility for service, combustion air and ventilation, burners, pilots, motors, pumps, and blowers. The section of the standard defining the method for determining capacity of units is based on the ARI standard discussed above (ARI 250-58).

AGA Research

MEANWHILE, AGA-sponsored research continues, aimed at minimizing what are now considered the disadvantages of both absorption and engine-driven equipment and capitalizing on their advantages.

Among these projects is the study being conducted by Southwest Research Institute, under contract with AGA, of the feasibility of a double effect lithium-bromide unit, although its efforts are directed to the 20-ton size rather than residential type of equipment. Such a unit would have certain advantages over the one-stage system, in that it would have higher efficiency, would be automatic self-purging, and, possibly, could be developed so as to operate as an air-cooled unit. One disadvantage of presently manufactured lithium bromide evaporative units is the necessity for water-cooled condensers.

ALSO, work is being carried on under AGA direction on a prototype absorption unit, in which cooling and dehumidification would be effected by wetting and drying of the air stream.

A new five-ton engine-compressor unit is being field tested, and, already mentioned, the free-piston engine compressor is being developed by one large manufacturer.

In addition, several projects are devoted to basic studies of such things as thermodynamics of multifluid absorption systems, thermoelectric refrigeration, and jet compression.

In connection with basic research, which could develop entirely new methods for using gas for cooling, Charles B. Gamble, Jr., vice president of Alabama Gas Corporation, summarized six years of AGA air-conditioning research at the April research and utilization conference by pointing out that most of the work to date has been concerned primarily with the refinement or improvement of known cycles, which he termed the initial goal of the research. Now, entering the sixties, he indicated that efforts will steadily shift to a more basic approach of finding a new or novel means of cooling with gas.

So much for technology. While some of the foregoing may have seemed too, too technical, it is well to remember that today gas "air conditioning" is divided into two basic types, with a number of variations of each.

The Merchandising Picture

Now what of the merchandising that has brought about this tremendous increase in sales in the face of not inconsiderable odds?

Merchandising activities of the promoters of gas air conditioning can best be described as dynamic and aggressive, although at the moment the distribution and pricing policies are confused, or, in the words of some of its good friends, "in the process of formation."

As already indicated, prices to customers vary widely (although generally higher than comparably sized electric equipment), and distribution may be through utilities, distributors, agents, or dealers.

Because it is a new commodity, residential gas air-conditioning installation and service assume greater significance in pricing and distribution than in longer-established commodity merchandising. As a result, there will be some places where gas air conditioners will cost customers more a few years from now in spite of reduced production costs and more standardized distribution.

And service may cost more in some of the areas where it is now being offered free or at nominal cost. In effect, as gas air conditioning matures, it will fall more and more into the pattern of its competition, unless there are reversals in the foreseeable trend.

The central factor in the confused merchandising picture is the attitude of the local utility toward gas air conditioning, determining in a very practical way what it will cost a consumer to purchase and operate a residential or small commercial unit.

If the utility merchandises equipment it may have a pricing schedule which offers the unit to the dealer at 5 per cent over cost, to a home owner at 15 per cent above cost. Another company may offer units to dealers and distributors at a 5 per cent markup, to the ultimate user at 10 per cent. Still others offer the units at cost to everybody. One utility in Michigan buys units in carload lots and drop ships them for dealers at cost-plus-freight.

If the utility does not merchandise, then dealers and distributors must make their deals direct, and prices and costs can vary widely.

Installation and Service

Installation charges vary considerably, also. While labor costs and such

factors have a distinct bearing on these charges, many times the ups and downs of installation cost reflect how much the utility is willing to absorb. Some will pay for the plumbing hookup of a water-chiller system, others for the duct work of a cooled-air installation. Some will pay for the cost of delivering and locating the equipment—a factor which can mount up in cities where union control is such that the contractor cannot do it himself.

Whether the utility merchandises or not, it may take an active part in engineering the installation. "The gas company in one of our territories gets the prospect, makes the heat-loss calculations, fills out the order blank, then hands it to the dealer to hand to the customer for his signature," according to one manufacturer. In another area, when the utility actually gets and writes up the order, the dealer who acts as installing contractor gets only his contracting fee—no markup on the unit.

In the realm of service, as already mentioned, absorption units seem to have a high reliability, primarily because they have far fewer moving parts than either gas- or electrically driven compressor-type equipment. Hence, some utilities offer free service for one or two years, and very inexpensive service from then on, either by contract or on a time-and-materials basis. Utility executives whose companies offer this low-cost or no-cost service explain that unless the unit is operative there is no gas being used, and that it is plain "good business" to keep them running.

While, so far as is known by this writer, no nation-wide study has been made of various inducements in the form of low summer rates by gas utilities, it is generally agreed that more of them are making such schedules in an effort to bolster their load factor during the hot months.

Advertising and Promotion

Now, as for general industry promotion: Here again, some utilities are more aggressive than others. Typical of the more aggressive group's activities was the "Gas Air-conditioning Seminar" staged

this spring by Michigan Consolidated Gas Company.

About 200 architects and engineers from the Detroit area attended the evening-long program, which included dinner, guest speakers, a panel discussion by manufacturers' representatives, and a question-and-answer period. Following the formal program, guests circulated among manufacturers' displays, where the question-and-answer period resumed on an informal business basis.

To obtain maximum effectiveness, the company developed a four-point program: A listing of those in attendance was prepared for each manufacturer of gas equipment to follow up by direct mail and other contacts; a kit with specification sheets of gas air-conditioning equipment was distributed by the utility to every name on the attendance list; representatives of the gas company established better communications with the architects and engineers; and the Michigan chapter of the American Institute of Architects, and all new building starts in the area, are being followed up by personal calls and mailings.

The result has been, according to the newsletter of the AGA Air-conditioning Promotion Committee, "increased specification of gas air conditioning by architects."

This newsletter, in itself, one of AGA's PAR (Promotion, Advertising, Research) activities, is helping utilities with their problems of merchandising, reporting to the industry, among other things, what various utilities are doing in their areas (as the above report on Michigan Consolidated).

Another such report of aggressive merchandising carried by the newsletter told of a direct-mail campaign by Southern Union Gas Company, addressed to a carefully selected group (about 15 per cent) of the company's residential customers and most smaller commercial customers in its four-state area. Without going into details as to the campaign, which offered a free survey of the customer's needs, plus an estimate on "low-cost gas air conditioning," officers of the company report that it has "produced tangible results in sales."

With research continuing apace, and with the promotional and merchandising efforts of AGA plus the growing number of utilities throughout the country which are joining in these activities, gas air conditioning is definitely moving ahead. Whether it will meet the goals set for it in residential and small commercial applications by some of its more sympathetic supporters remains to be seen; and, even if it does, it will only serve to curtail the rapidly rising curve of air conditioning by electricity. It is reasonably certain that it cannot cause a cutback in sales of the competing equipment, since the market for any and all types is wide open, and, as has been pointed out previously, the public is being awakened to the benefits of residential air conditioning, by whatever fuel it may be powered. For this reason both gas and electricity may be expected to share in the general upsurge of the coming decade—each to the extent and success of its research and development activities and of its promotional and merchandising tactics and strategy.

Both will gain, but the public will probably be the "big winner."

Financing the Expansion Program of the Natural Gas Transmission Industry

By PAUL G. LaGRONE*

The natural gas industry is the sixth industry in size in the United States. To take advantage of a waiting market, the industry has conceived a gigantic construction schedule covering the next four years. With debt issues affording an almost certain return to conservative investors and common stock being in great demand, money for the expansion seems assured. Construction is presently at an all-time high, with the schedule over the next four years calling for expenditures totaling $3.5 billion.

Company Relations with Investors, Bankers, and Security Dealers

To raise the large amounts of capital needed to finance the natural gas industry's expansion program, it is essential that the industry, and especially its individual members, develop and maintain confidence among investors, bankers, and security dealers. It is also imperative that the security analyst have a good understanding of the potential of the company and its officials so that the company's securities may receive the highest rating possible under the existing financial structure.[1] Such confidence and understanding emerge in financial circles and among investors only when a transmission company (or, indeed, any company) presents its data in a proper fashion. Usually a carefully planned financial and business public relations program is necessary.

All unwarranted fears and misconceptions about the company's future prospects should be dispelled. Some investors may fear that expansion will diminish earnings; but every effort is made to project earnings before and after an expansion program, thereby setting forth the

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effects of the additional securities on the current capital stock.

ANOTHER fear chiefly concerns the adequacy of the rates charged by the company. Company officials can point out that these fears are generally unfounded, for the commission is expected to have the proper view of the question of rate increases. While the commission insists on reasonable rates for consumers, it is cognizant of the fact that the growing demand for service requires natural gas companies to have sound financial structures which will attract new investment:

> The rate of return allowed natural gas companies by the FPC represents the commission's best judgment of what is fair under the circumstances, based upon the evidence and guided by the basic facts required by law to be considered. The rate of return must be sufficient to attract all classes of investment capital. The returns earned by equity capital committed to public utility and other enterprises must, to a large extent, meet the judgment of buyers and sellers in the security markets. . . .[2]

As a result of the commission's stand, the investors can feel assured that as costs rise, adequate consideration will be given to the matter of rate increases.

INVESTORS are always concerned, too, about the capability of management. Indeed, whether or not they invest their money depends to a great extent on management; that is, on its past record and its likely future course. Efficient management is reflected in the efficiency of operations, the reasonableness of rates, friendly public relations, and the general soundness of the capital structure and credit of the company.

Successful financing of a natural gas expansion program, then, is basically a sales job by management. Because of the large amount of securities sold by natural gas companies to finance their construction requirement, maintaining good relations with bankers, underwriters, security dealers, and investors is of the utmost importance. These must be well-informed about the investment qualities of natural gas company securities.[3] Most individual security holders buy securities on the recommendation of a commercial banker or a security dealer or someone who is acting on the advice of one or the other of the first two.

DURING the decade 1935 to 1945, when companies were refinancing securities, intensive public relations programs were of less importance. During this period most refunding securities were sold to institutional investors whose own staffs determined the merits of the securities offered.

This observation, of course, does not mean that institutional investors do not now take a substantial portion of the securities; for example, an insurance company negotiated with the Texas Eastern Transmission Corporation for an entire issue of its securities.

Natural gas companies must, however, raise substantial amounts of "new" capital from the sale of equity securities, debentures, and preferred stock which may be converted into common.

Financial Public Relations Methods

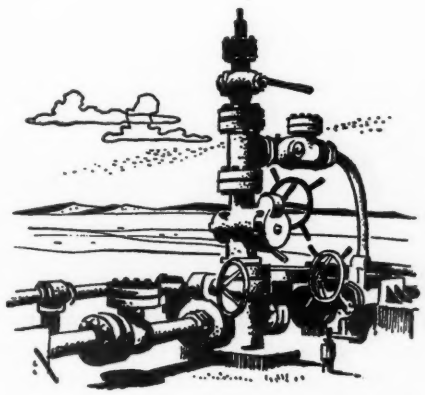
THE methods by which a company may keep its name before bankers and dealers are many. Generally, companies needing large amounts of capital require national coverage. It is perhaps desirable that each company, by an analysis of its security holders, determine where its name is favorably known and estimate how broad a market is needed to raise new funds. The next step is to set up a program for contacting security dealers. Natural gas companies are aided immeasurably when an underwriter agrees to become the head of a group of underwriters and to act as the "manager" of the issue. The head of a group of underwriters may, however, be only a contact for the company where deliveries and payments are made.

It has been found that the most effective method of disseminating information is by direct personal contact with banks, underwriting associations, and other security houses, where the representatives may either present data in group meetings of dealers or initiate individual discussions. Some companies retain a financial expert on a continuous consulting basis, although this practice does not seem to be universal in the field.

THE importance of keeping the bankers and security dealers informed cannot be overemphasized, for it is a continuing process that requires a sustained effort by a responsible officer of the company.[4] It follows that contacts with bankers, underwriters, and security dealers must not be deferred until a company is in the process of expanding and needs additional financing. Rather, the company must already have prepared a market to take its securities and, further, to take them at a good figure.

Securities of a transmission company sell in the range of yields and price earnings of other utilities of the same quality; however, since the difference between the top and bottom of that range is substantial, it is financially desirable to make every effort to sell securities at the top of the range.[5]

THE relative quality ratings of existing securities have a major influence on price in the marketing of new securities. As a result, whenever any financing is to take place, it is important that such rating agencies as Moody's, Standard & Poor's, and Fitch's be supplied with adequate information. To insure that these agencies are properly briefed, it is desirable that a responsible company officer visit them periodically to acquaint them with current and future financing plans and, of course, to answer questions concerning company affairs.[6] Such relations provide reassurance to individual investing groups and enable the natural gas



company to finance at the lowest rates possible under the current conditions.

Good investor relations, then, are well-planned, not left to chance; and, once they are achieved, every effort should be made to maintain them.

Funds Required by the Natural Gas Industry

In the last ten years the total distribution and transmission investment in plant has approximately tripled to its present level of $18 billion. Of more significance to this investigation, however, is the fact that nearly one-half of this $18 billion applies to transmission companies, which have grown to six and one-half times their size of ten years ago.

In comparing construction expenditures expected to materialize in the next several years with those of the recent past, the transmission industry expended $648 million in 1955, and $722 million in 1956. In 1958 the outlay dropped to $715 million, but in 1962 it may rise as high as $1,025 million. The American Gas Association's survey for proposed expenditures during the period 1959-62 indicates that the natural gas transmission industry plans a total construction of $3.5 billion, as compared with slightly more than $2.8 billion during 1954-58.[7] The sustained heavy expenditures for new transmission lines will complete projects in the Pacific Northwest, Florida, and Texas, giving almost the entire United States access to natural gas.

The industry is fortunate in that not all construction expenditures require outside financing; a considerable portion of the needed funds can be derived from sources within the business itself. Major construction programs, however, require outside financing. A simplified industry cash flow statement would show how funds are provided to meet construction programs.[8] The income statement does not reflect the flow of cash in and out of a company or a group of companies. Depreciation, together with depletion and other amortization of previous outlays, provides the principal noncash charge in the income statement, thereby increasing the amount of cash held within the company. Another source of cash for financing construction is the earnings which are not distributed to the stockholders in the form of dividends.

These two sources of cash now provide the transmission companies with close to $500 million per year, part of which is kept in reserve. The funds provided from these sources, of course, increase as earnings and investment in the plant grow.

When the amounts of money necessary for construction exceed these internally generated funds, a company must issue equity securities and/or assume long-term debt. For distribution and transmission, 37 cents out of every dollar is financed by common stock and surplus, which are the foundation for the senior securities. Preferred stock is a relatively unimportant financing medium, amounting to only seven cents. Debt supports 56 cents out of every dollar.

Over the next several years retained earnings and depreciation are expected to rise while construction outlays may remain approximately the same as in 1954-58. If these expectations materialize, the need for new financing should increase

to some extent. Since the annual outlay for 1959 reached $809 million, the outside funds required amounted to approximately $500 million for the transmission industry.

Capital Structure[9]

In the case of both the transmission and distribution industries, the development of capital structure over the last two decades and a half is of particular significance. Equity capital in the industry before and after World War II represented more than 60 per cent of the total investment, whereas the debt burden was less than 40 per cent. Since that time, the weight of the great expansion programs financed by borrowing has caused the debt to rise to a level of 55 per cent, where it has tended to remain. The proportion of capital raised by common equity has decreased from over 60 per cent in 1941 to approximately 37 per cent. Preferred stock has provided a relatively insignificant proportion of the total throughout the entire period.

The combined presentation of the capital structure of transmission and distribution companies cannot reveal the one significant difference in the two types of business, notably their difference in debt structure. The debt level of transmission companies, 61.1 per cent, is substantially above the combined average. Preferred stock again constitutes a relatively insignificant proportion, approximately 9.6 per cent. The most notable difference, of course, is found in the smaller reliance on common equities. Furthermore, the proportion of capital raised through the sale of equities has decreased nearly 50 per cent.

There is a considerable variation of capital structure within the group of major companies. This variation is displayed in the capital structures of 13 companies engaged predominantly in the sale of gas at wholesale whose annual revenues exceed $10 million. Only two have a common equity above 35 per cent; even with the addition of the preferred to common, equity capital remains relatively low.

Six of the 13 companies have less than 25 per cent common equity, which has been stated by the Securities and Ex-

change Commission and most investors as the minimum acceptable level for electric utilities. Generally, the owners are investing only 25 cents or less out of every dollar of capital required for construction. Debt ratios, including preferred which has a high cost, tend to range from 65 per cent to 75 per cent.

Debt Financing Preferred

In recent years, companies financing major new pipelines ordinarily have raised capital by incurring debt in the form of bonds or debentures amounting to approximately 75 per cent, the remaining 25 per cent being divided into common and preferred, common, of course, being predominant. The trend toward a higher and higher ratio of senior securities was halted several years ago when El Paso Natural Gas applied to the Federal Power Commission for a certificate to expand its lines by this means. El Paso's equity would have fallen below 15 per cent. The Federal Power Commission does not have jurisdiction over financing as such; but in applications for certificates to build the commission does require evidence of financing ability and feasibility.

Consequently, the commission would not grant a certificate until El Paso changed its plan of financing so that no more than 75 per cent would be debt. Of the remaining portion, at least 15 per cent had to be common equity. El Paso changed its plans, and from that time the unofficial limits have restricted senior security pyramiding.[10]

Investors are willing to purchase pipeline securities, even though the debt structure is high, because of the nature of the business. The transmission company, for example, must have firm contracts to buy gas at one end of the line and firm contracts to sell that amount of gas at the other before the commission will allow it to build a line. The bonds are paid off in annual instalments through a sinking fund, ordinarily in twenty years, although some may be set up for twenty-five years.

At the same time, the cost of the line is recovered through the process of depreciation. The noncash charge thus provides enough cash to meet the sinking-fund requirements each year, except in cases where the sinking fund is scheduled to retire all bonds in twenty-five years; and at the end of twenty years the final payment is made, thus causing a balloon effect on the payment to be made to the sinking fund. Given such safeguards, the bondholder is willing to loan a large part of the cost of construction.

Why Common Stock Is Not Sold

The reasons commonly advanced for the failure to sell common stock are that the market is poor and that the flotation of common stock is too expensive to be justified. Neither of these explanations is satisfactory, however, because gas equities have been selling at high ratios to earnings. New offerings have been quickly absorbed and soon sold at a premium over the offering price. The common stock investor is willing to participate in such ventures despite the modest equity ratio because of the attractiveness of leverage. Leverage motivates the issuance of senior securities; but the capital structure should not, for the sake of

higher return on the common equity, be extended to the point that it becomes unsound.

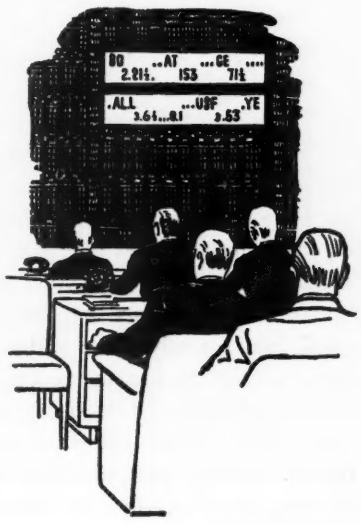
Other reasons for not selling common stock originated in certain assumptions about the future of our economy. It was thought that the prosperity of World War II would be followed by depression; the need for funds was looked upon as temporary, as an emergency that would be terminated when the projects undertaken were completed. From the point of view of a natural gas company, therefore, selling bonds to finance an expansion was preferable to issuing additional common stock because the interest on bonds is deductible for tax purposes.

In the last decade debt financing at the then attractive rates seemed the appropriate solution for most natural gas transmission companies. Sinking-fund payments and retirements undertaken could easily be met from the noncash depreciation charge and from profits that would accrue from the expansion. Time would strengthen the weakened capital structure by reducing debts to a point where the ratios looked better. These prognostications, however, proved wrong. The effect of the continued high level of business activity has caused demand for gas to increase instead of level off as expected. Thus new and larger facilities have been planned and constructed. Thus, companies have persistently financed their capital needs largely through bond issues, thereby maintaining the high debt ratio.[11]

The natural gas distribution companies have a much more conservative capital structure than do the transmission companies. The debt level for distributors is maintained at about 50 per cent, and the common equity is maintained around 45 per cent.

Expansions both in the transmission and distribution industries are seldom financed by preferred stock. Although many of the preferred stocks are supported by sinking funds which will retire them and eventually increase the common equity ratio, the period of retirement is usually longer than that of bonds. Another reason preferred stocks are not popular among firms in the gas industry is that their dividend rate must be high in order to attract capital.

The purpose of preferred stock in the structure, of course, is to reduce the risk consequent on debt.[12] Debt ratio should be kept low enough so that a borrowing reserve is available in cases of emergency. This is particularly true for the natural gas industry, which is obligated to satisfy the demands of its customers at all times,



even though the need for funds should arise when the market for common stock is unfavorable. It is not possible to make a general statement as to what the capital structure in the natural gas industry should be: The characteristics of individual companies—extent of integration, type of load, territory, property, and accounting policies—all have such a decided influence.[13]

Some Financing Methods of Industry

How do industrial corporations finance their needs? Some corporations use bonded indebtedness extensively, and others shun it. The Du Pont financial policy has been to avoid debt in its financial structure; the same statement can be made of U. S. Steel, although because of a squeeze on working capital this company sold $300 million of debentures. Other companies think that financing with bonds offers certain advantages. Continental Can Company raised 25 per cent of its total capital by issuance of bonds which have a maturity of forty years with no sinking-fund requirements. Dow Chemical Company raised slightly under 40 per cent through bonds. Cleveland Electric Company, with a triple A rating for its bonds, raised as much as 51 per cent from this source.[14]

During the last ten years, U. S. industry in general has financed internally the major part of its expansion. Now, however, there are indications that corporations will have to rely more and more frequently on the outside money market. Corporate long-term debt has nearly doubled since 1947, $46.1 billion to nearly $90 billion. Stockholders' equity at market (the best measure of what assets are worth), however, has nearly tripled, increasing from $100 billion to $290 billion. Corporate debt is considered low, interest payments taking less than 10 per cent of gross income and one-third of depreciation and amortization. The acceleration of corporate debt now depends upon how quickly corporate managers lose their fear of debt.[15]

Common Stock: Its Price and Appraisal

The circumstances connected with price and appraisal of common stock apply to the gas industry. The price of common stock represents the collective judgment of its worth by buyers and sellers in the same market. There are many factors which influence investors, but they may all be classified under the "quantity" and "quality" of future earnings. If two theoretical companies were of equal standing, a buyer would for $2 of prospective earnings pay twice as much as he would for $1 of earnings.

In reality, two companies are never "equals"; for each, variables affect the quality of earnings and, consequently, the investors' appraisal of them. One dollar of prospective earnings in a sound company may be equal in price to $2 or more in some other company which is characterized by poor management and risky activities. Some of the variables which may affect the quality of future earnings are: capitalization, rate structure, competitive position, managerial ability, and growth prospects. These factors cannot be measured objectively, yet they weigh heavily in the appraisals made in investors.[16]

In appraisal one of the common yardsticks is the price-earnings ratio which

is computed by dividing the security price by the most recently reported twelve months' earnings.[17] This method, however, fails to take into consideration the collective judgment of investors as to future earnings, except to the extent that past earnings may indicate what can be expected in the future.[18] Another way of relating price to earnings is called the earnings-price ratio, which puts common stock on the same sort of percentage basis as preferred stocks or bonds. The dividend yield is still another important factor determining market price. It has been generally found that investors in utility securities rate more highly every dollar received in dividends than when the same amount is held in the surplus and reinvested.

THE results of investor appraisal of natural gas transmission stocks in terms of earnings show that earnings-price ratios range from 3 to 8.5 per cent, an average of 6.3 per cent for the group. This means, of course, that the investors will average $6.30 of earnings for every $100 of funds invested in transmission stocks. In an appraisal of dividends for the same companies the transmission companies have an average yield of approximately 4.5 per cent on the market price of their stocks to investors. The difference between the dividend yield and the earning yield represents the amount of earnings retained in the business. Since this return at today's market price is the lowest the investors have received in a number of years, the major transmission companies are giving increasing consideration to common stock as a source of capital.

IT should be pointed out that these ratios do not represent the actual cost of common capital when natural gas transmission companies have to go to the market to raise money for expansion, but that they are indicative of the low cost of this type of capital. The starting point for pricing a new issue of common stock is the current market price; the amounts actually received, however, are sure to fall short of this figure.

In order to make a large issue attractive enough to sell, the issuing company

may have to offer the stock at a discount from the going market price, especially if the shares are being offered to its own stockholders. A further discount may have to be given to create a value to the rights so that stockholders will exercise them. Finally, underwriters' fees and legal, accounting, printing, and mailing costs are always substantial.[19]

Case Studies

THIS section presents case studies of two natural gas transmission companies that financed expansion programs.[20] Company X considered the desirability and appropriateness of convertible debentures and the effect of additional shares on the capital structure before reaching a decision as to the best method for financing. Company Y, having completed this phase of its financing, adopted the best method for its particular conditions.

Case 1: Company X

THE general policy of Company X is seen to be directed towards even balance between debts and equity in its capital structure; the expressed intention of management has been to maintain a debt ratio which will not exceed 60 per cent of the capital structure. Company X's capitalization, excluding outstanding bank loans, consists of:

Equity	$232,000,000	45%
Debt	279,000,000	55%
Total	$511,000,000	100%

The estimated new capital requirements of Company X total approximately $65 million. If it were to issue $65 million of debt, consisting of $40 million of convertible debentures and $25 million of other debt securities, the company would exhaust the senior debt reserve available within limits of a 60 per cent debt and 40 per cent equity capitalization. Upon the basis of this ratio, the permissible new debt would amount to $69 million:

Equity		$232,000,000	40%
Debt			
Present	$279,000,000		
New	69,000,000		
		348,000,000	60%
Total		$580,000,000	100%

THESE figures indicate that if $65 million of debt securities were issued, the senior debt reserve remaining within the limits of a 60-40 equity capitalization would be only $4 million. If $40 million of common stock were issued, however, the senior debt reserve could increase correspondingly, amounting to $129 million without disturbing the 60-40 equity capitalization. After deduction of the contemplated issue of $25 million of bonds, the senior reserve would be $104 million. Thus there would be ample insurance against the day when equity financing would be either impracticable or impossible.

So long as the convertible debentures remain outstanding, they form part of the senior debt structure of Company X and will not be converted until the market price of the common stock reaches a profitable conversion price. Assuming that the convertible debentures carry a 4 per cent interest rate and that the yield on common stock remains at approximately 4.5 per cent, there is no incentive to convert unless the market price on the common stock increases sufficiently to reduce the

yield on the debenture. Such an increase, however, would dilute the common stock equity.

COMPANY X's earnings show that the dividend of $1.50 per share was adequately covered by the 19a earnings and more than covered by the 19b earnings. The statistics, it should be pointed out, give no consideration to increased revenues and earnings contemplated from applications for increases.

Any comparison must be weighed in the light of data peculiar to the issuer; that is, in the light of the necessity, appropriateness, and desirability of the proposed issue. On the basis of such data, it appears that an issue of convertible debentures is neither desirable nor appropriate for Company X. In the first place, an issue of convertible debentures in addition to other contemplated debt securities would exhaust the company's margin of senior debt reserve available within a 60-40 capitalization and would eliminate any insurance against the time when equity financing might not be possible. Secondly, an issue of convertible debentures would restrict both future debt and equity financing. A convertible debenture results in an overhang of a substantial amount of common stock and tends to impair future equity financing. Finally, the earnings on the common stock of Company X point to the advisability of an issue of common rather than convertible debenture.

Case 2: Company Y

COMPANY Y in 19a offered to stockholders $32,220,100 of 4½ per cent convertible sinking-fund debentures due in 1973 on the basis of $100 of debentures for each 10 shares of common stock. The initial conversion price was $28, and the market price the day before the prospectus became effective was quoted at 26½. The debentures were convertible into common stock any time prior to June, 1973, on the basis of $28 per share to 1958; $30.50 from 1958 to 1963; $33 from 1963 to 1968; and $35.50 from 1968 to June, 1973.

The debenture agreement provided for a sinking fund which would start after five years and would return 100 per cent by maturity. The initial redemption price was 105. Of the initial offering, $11,021,800 of the debentures was purchased by underwriters. As of May 31st, 19d, $2,029,930 of the debentures had been converted. Shown below are statistics relevant to Company Y's issue.

WHAT was the cost of this security as compared with that of common

Shares Outstanding:			3,422,102
Reserved for Conversion:			1,222,055
	19b	*19a*	*19c*
Net Income	$6,749,710	$7,036,615	$6,497,643
Earnings per share	1.97	2.06	1.89
Earnings per share including shares reserved for conversion	1.45	1.515	1.40
Dividends paid	1.325	1.40	1.55

(For the first quarter of 19d earnings were 40 cents per share as compared with 49 cents in 19c.)

stock? In the first place, comparing the cost of a convertible debenture issue with that of a straight equity issue involves a definition of cost. The company's experience has been that the issuance expense, when stock is offered to stockholders through subscription rights, is about 1.5 per cent of the gross proceeds. This makes a net price to the company of 98.5 per cent, which is not greatly different from the 98.9 per cent received from debentures. However, in order to insure the success of the subscription, the stock usually must be offered at a discount, a fact which adds considerably to the effective cost of raising capital.

One of the biggest factors in considering the type of security to use in raising capital is the cost after issuance. In other words, it may have been necessary for Company Y to place a 5 per cent coupon rate on a straight debenture issue, compared with a 4½ per cent rate on the convertible issue, the latter thus appearing more attractive. And, indeed, money market conditions at the time this issue was offered made it appear that a 5 per cent rate would be required on a straight debenture issue.

COMPANY Y's decision to issue convertible debentures rather than some other form of security rested on additional considerations. Under the terms of the first mortgage debenture, Company Y was permitted to issue first mortgage bonds up to 60 per cent of cost of its mortgageable properties. The other 40 per cent of the properties, together with the company's working capital, had to be provided from surplus, common stock, and other securities subsidiary to the first mortgage.

When Company Y undertook a major expansion program, first mortgage securities were sold to cover the permitted 60 per cent of the cost. The problem then was to decide the best means of providing the necessary additional funds. The soundest capital structure would be one with a minimum of debt and a maximum of equity. This structure, however, has its disadvantages in that the cost of equity capital, whether in common or preferred stock, is much higher than the cost of debt capital. In view of Company Y's strong earnings position and the somewhat sheltered protection of income through federal regulations, it was believed sound practice to raise the necessary money through the sale of debentures.

MAKING the debenture issue convertible into common stock would increase the attractiveness of the issue and hence result in a lower coupon rate, further reducing cost below that of direct equity financing. The conversion feature has an additional advantage in that as the issue is converted, retirements through sinking-fund payments are reduced, thereby making additional funds available to the company without the necessity of further financing and at the same time automatically strengthening its capital structure.

Furthermore, the conversion of these debentures into common stock during the life of the issue would be at prices higher than could have been obtained at the time the debentures were sold, thereby reducing the number of shares required.

FOR Company Y, the cost of debentures yielding 4½ per cent after federal and state income taxes was approximately

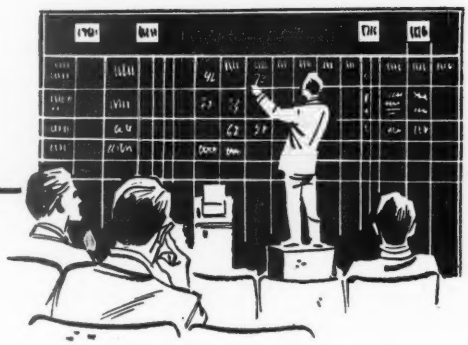
2.02 per cent. If the company had decided to issue common stock at $25 per share and maintain the same dividend rate of $1.40 per share, the cost of the money would have been 5.6 per cent. Being in a strong enough position to take advantage of a convertible debenture issue thus resulted in considerable savings to the company.

Company Y, of course, considered good business conditions essential for the success of any secondary issue of securities. Management's attitude would not be affected so much by the general level of stock market prices as by whether or not the market appeared to be firm or rising, rather than declining; secondary issues are not sold very easily in a weak stock market. As a result of its experience with convertible debentures, then, Company Y presently sees no reason for changing terms if it becomes necessary to offer another issue and if the same economic conditions should prevail.

Summary

While minor expansion projects may be carried out with funds generated within the transmission company, major construction ordinarily requires outside financing. To obtain such money, the company must provide a carefully planned financial and business public relations program designed to allay unwarranted fears and misconceptions about decreased earnings and inadequate rates. Precise information, coupled with the fact that the Federal Power Commission has strict limits concerning capital structure, creates the investor confidence necessary to raise the huge sums of money required annually to conduct the gas business. Considerations peculiar to the company and economic conditions determine the method of financing. Convertible debentures, for example, are becoming increasingly popular.

Over the last decade the transmission officials have financed mostly through debt; they have, consequently, been the object of much criticism. Such comment inevitably focuses on the alleged ruthlessness of a few men who are more interested in quick profits for themselves than in sound capital structures for their companies. Because the interest on bonds is deductible for tax purposes and because



of the high rate of interest and the "permanent" nature of common stock, this criticism seems, on superficial examination, to be justified.

It is shortsighted, however, to regard out of context the decision to sell bonds instead of common stock. Transmission officials considering expansion have certainly been aware of the deductibility of interest on bonds for tax purposes, but they have also been acutely aware of the rapidity with which the natural gas industry has grown. Rapid growth requires readily available capital, and selling common stock freely can decrease earnings to the point where common stock will lack a market. Debt financing, one may assume, is better than no financing. The companies could, of course, turn to preferred stock, but the dividend on preferred stock must necessarily be high in order to attract investors.

In any case, debt financing cannot be abused; before granting a certificate of convenience, the Federal Power Commission must receive proof of sound capital structure, and the Securities and Exchange Commission has direct control over issuance of securities.

As indicated above, the holders of common stock in a company contemplating expansion prefer financing through bonds; with bonds, they need not share their earnings with "new" holders, as would be the case if the financing were done through an issue of common stock. The investors who buy the bonds also benefit; ordinarily they are interested not in a quick profit, but in a steady return over a long period of time.

Even the consumer benefits from a bond issue; the burden of maintaining high returns for an even greater number of holders of common stock does not fall on him in the form of boosted rates.

The details of financing, from initial studies to type of issue, are many and tedious. Mastering them requires both perseverance and imaginative, aggressive thinking. But there is one aspect of financing that is incredibly simple: the revolving fund. Officials of one company have easily made provision to borrow $25 million, and those of another $46 million from their bankers. The details are settled later, of course, but basically the loan is arranged over the telephone with their bankers. For the privilege of having readily available such large amounts of liquid funds, the transmission companies pay one-quarter of one per cent interest on the total amount at their disposal; when they actually draw on the funds, they pay in addition the going rate of interest in the money market.

Such funds are worth their cost, since they figure strongly in perhaps the most important single item in financing an expansion; that is, the time at which an issue of securities hits the market. As J. W. Hargrove of Texas Eastern indicated during an interview, company officials can foresee when they will need capital for expansion, and they can decide whether to issue stock or bonds. They cannot, however, control the condition of the money market. Should another company's securities drain off, or threaten to drain off the available cash, they may decide to accelerate or postpone their own issue accordingly. Readily available funds permit reasonable flexibility in the matter

of timing, which, once again, is all important. If anyone could predict the optimum time for a security to hit the market, his services would be priceless.

Footnotes

[1] American Gas Association, *Financing Utility Capital Requirements*, p. 22.
[2] *Federal Power Commission Staff Report*, December 22, 1948.
[3] American Gas Association, *op. cit.*, p. 27.
[4] *Financing Utility Capital Requirements*, p. 29.
[5] *Ibid.*
[6] For example, C. T. Chenery, "Discussion of Affairs of Southern Natural Gas Company," speech delivered before the New York Society of Security Analysts.
[7] American Gas Association, Public Information Bureau release.
[8] Marvin Chandler, "How Natural Gas Companies Finance Their Needs," speech delivered before the Mid-West Industrial Gas Council.
[9] For much of the information in this and the following two sections, the present writer is indebted to J. W. Hargrove of Texas Eastern.
[10] Chandler, *op cit.*
[11] "What's Ahead for Gas Expansion Financing," by the Honorable Edmond M. Hanrahan, PUBLIC UTILITIES FORTNIGHTLY, Vol. XLIII, No. 1, January 6, 1949, p. 13.
[12] Chandler, *op. cit.*
[13] *Ibid.*
[14] Charles E. Silberman, "How Much Can Business Borrow?" *Fortune*, LIII, No. 6 (June, 1956), pp. 131-135.
[15] *Ibid.*
[16] *Ibid.*
[17] Chandler, *op. cit.*
[18] If Company X earns $1 and sells for $15 per share, whereas Company Y earns $1 and sells for $18, the latter company is more favorably regarded by investors.
[19] Chandler, *op. cit.*
[20] The author has been asked to keep names of these companies confidential.

AGA 1960 CONVENTION TIMETABLE,
ATLANTIC CITY, NEW JERSEY

	Sunday, October 9th
10:00 a.m.	Registration, Convention Hall (till 5 p.m.).
12 noon	Festival of Flame Exhibit (till 5 p.m.).
2:00 p.m.	Boardwalk Parade to Convention Hall, followed by opening ceremonies, Festival of Flame.
	Monday, October 10th
8:30 a.m.	Registration, Convention Hall (till 5 p.m.).
9:45 a.m.	Convention Opening Session, Ballroom, Convention Hall (till 12 noon).
12:30 p.m.	General Management Section Luncheon, Borton Hall, Dennis Hotel.
2:00 p.m.	Accounting Section Meeting, Julia Meade Room, Exhibit Hall.
2:00 p.m.	Operating Section Meeting, Gold Star Room, Exhibit Hall.
2:00 p.m.	Joint Session of Industrial and Commercial Gas and Residential Gas sections, Blue Star Room, Exhibit Hall.
2:00 p.m.	Home Service Round Table, Gasarama Room, Exhibit Hall.
8:30 p.m.	President's Reception, Entertainment and Dance, Ballroom, Convention Hall.
	Tuesday, October 11th
8:00 a.m.	Home Service Breakfast, American Room, Hotel Traymore.
8:30 a.m.	Registration, Convention Hall (till 5 p.m.).
9:45 a.m.	Convention General Session, Ballroom, Convention Hall (till 12 noon).
1:00 p.m.	Ladies' Luncheon and Party, Renaissance Room, Ambassador Hotel.
2:00 p.m.	Accounting Section Meeting, Julia Meade Room, Exhibit Hall.
	Wednesday, October 12th
8:30 a.m.	Registration, Convention Hall (till 12 noon).
9:45 a.m.	Convention General Session, Ballroom, Convention Hall (till 12 noon).
12 noon	Executive Session, Gold Star Room, Exhibit Hall.
12:30 p.m.	Grand "Festival of Flame" Luncheon, Ballroom, Convention Hall (till 2:30 p.m.).

More than a Fad . . .
the Resurrected Gas Lamp

There is solid marketing motivation in this sudden urge to sit under an early General Grant street light. Other industries are capitalizing on nostalgia for things of yesteryear, so why not gas? It has given the gas industry a million dollars worth of publicity as well as additional revenue.

By JAMES H. COLLINS*

MAYBE what the gas industry really needed was a touch of nostalgia —the Smiths entertaining the Joneses at a backyard barbecue, under the light of other days. The resurrected street lamp from the first Cleveland administration, for novelty and surprise.

It will be remembered that, as natural gas pipelines began to spread out over our fair land, there was considerable debate about "What the Gas Industry Needs."

*Professional writer, resident in Washington, D. C. For additional note, see "Pages with the Editors."

Gas had an embarrassing growth of new customers, like the other utilities, and needed capital to build more pipelines, and develop that startling new idea in plant, underground storage.

Utility companies needed more distribution facilities.

Gas appliances were needed, for competition, and to provide summer business.

Gas had its own cost and inflation problems, and its rate and regulation dilemmas, and maybe above all, needed to be better understood by its customers and the general public.

Good brains in the industry went to work on these needs, and came up with good plans, but, as far as can be discovered, nobody suggested that what gas needed was that old street lamp in the Smiths' backyard.

IT is not only the unexpected that generally happens, but it can be counted on. Apparently nobody in gas discovered the old street light. It was a gift of the fairies. A gas company executive saw such a thing listed in a catalogue of camp equipment, and sent for one, and was

amazed at the quality of its light. He saw possibilities in its economy. He also saw publicity in it. He put these possibilities to work for his company.

In fact, he fired a shot heard round the gas world, by offering the city fathers of Little Rock replacement of electric street lights, with free gas forevermore. He was turned down, but, as he says—W. R. (Witt) Stephens, of the Arkansas Louisiana Gas Company, Shreveport—he got a million dollars worth of publicity, and alerted the gas industry to cash in on this sudden popular interest in gas.

What under the Gas Light Was Like

To oldsters who remember what the gas-lit world was like—and there are some of them still around—there is something quaint about atom-age people sitting under a gas street lamp, even though it be modernized with an aluminum oxide mantle.

Gas was for long a flickering yellow flame under a little porcelain bell that protected the ceiling. A very old boy might remember gas footlights lit by a stagehand with a torch, to cries of "Supe, supe!" from the gallery gods. A little later the big gas chandelier was lighted with crackling electricity.

We still speak of hogging the limelight, though there has not been a limelight in a theater for two generations. That was gas, bottled oxygen burnt against a calcium rod, located in the gallery, and an actor could not hog it, because it lighted the whole stage. It could be given a little variety with colored screens, blue for moonlight, red for sunrise. There would be no spotlights until electricity.

Why the Smiths should be fascinated by gas may be explained by status. It is a novelty, and novelty is keenly sought for entertaining. But it also suggests ancestry. It is like family portraits, or old silver. It may give the Joneses the feeling that the Smiths' grandparents lived in a comfortable mansion on Elm street, not so many years after the Civil War. Actually, the original Smiths may have been landing at Castle Garden then. Anyway, the Joneses are impressed, and tomorrow will order a gaslight of their own, and give a barbecue to dazzle the Johnsons.

Gas Might Talk about Its Real Past

This sudden revival of gaslight might arouse some nostalgia in the gas business itself, and prompt it to tell the present generation what it has been. Popularly, people think about gas as something that is dead and gone, like whale oil and stagecoaches.

There is no nostalgia about telephones or electricity. They had actual inventors, whose lives have been commemorated in feature movies. Bell and Edison have been commemorated in historic anniversaries.

And in postage stamps! Has gas ever had a commemorative postage stamp? Has the job of designing our postage stamps, in their bewildering variety, been given to the genius who used to name Pullman cars? If the Post Office sold advertising on them, it could probably wipe out its deficit tomorrow.

In its 160 years, the gas business has not only had some notable personalities, but has been progressive, is more progressive today, has a great future as well as a past, in which the Smiths and Joneses might be interested.

GAS DOES IT
Advertisement
NEW LOW GAS RATE
To be put into effect by Aug. 20
Presented by YOUR LOCAL GAS COMPANY
New Gas Rates
You do it better with GAS—

There used to be a scientific experiment that a boy could perform with simple apparatus—chiefly a long-stemmed clay pipe, a "churchwarden," perhaps not easily found today. He filled the bowl with powdered coal, sealed the top with wet clay, and put the bowl in a fireplace, with the stem sticking out. As the bowl got hot, a tiny jet of coal gas came out the stem, and could be lighted. When the coal burned out, tar or coke was left. The tar was to become something comparable with alternating current or even transistors.

GAS had a founding father, long forgotten, but a figure comparable with Bell and Edison. He was William Murdock, often enumerated with English inventors, though actually a Scot, who worked for another Scot, James Watt, the observant boy of the steam kettle, inventor of the steam engine. The Scots make a good deal of this; a handy thing to know in going around over there.

Murdock was an all-around inventor at the end of the eighteenth century, made several improvements in Watt's engines, better valves, and a sun-and-planet motion that Watt patented. Like Bell and Edison, he was interested in ideas in the air in his day, among them this distillation of gas from coal, for which the boy and the clay pipe experiment were like the steam kettle to Watt. In 1802 he lighted his own house with gas, made on the premises, and a little later he lighted Watt's engine works in London.

LIKE Edison and Bell, he saw that he had a service, and this led to the first utility, piping gas to customers—which was stubbornly opposed by those same Londoners, as against nature, and dangerous. Johnny Bull has always stiffened his neck over things like the steam locomotive, and railway travel, and even umbrellas.

A good thing for us; it led to our independence, and we have inherited some of the Johnny Bull. However, Napoleon pooh-poohed gas as a "grande folie." As he had done with the submarine.

Hollywood would unquestionably find

plenty of interest in the early days of gas, though might want to put in some love interest for Murdock and Watt.

Our First Gas Company Started By an Artist

GASLIGHT crossed the Atlantic quickly, even in those days of sail. By 1806 a man named David Melville lighted his house in Newport, Rhode Island, with gas made in a plant he had contrived himself, and got orders for similar plants in a cotton mill and a lighthouse.

But it was not until 1816 that the idea of piping gas around to customers materialized in this country. And this was done, not by an inventor, but by a portrait painter, one of the notable Peale family, a son of the Charles Willson Peale who painted Washington and other prominent figures of the post-Revolutionary era. This Peale had been a Revolutionary officer, was an engraver, and a man of ideas, though not an inventor.

He named his three sons after great artists, Rembrandt, Rafael, and Titian. They were all artists. Titian was also a naturalist, and accompanied exploring expeditions to Florida, the West, and even the South Seas, collecting plants and birds. Rembrandt Peale painted Washington, Jefferson, and Napoleon, and had other interests, among them paleontology, through which this country got its first gas company.

WHAT led to that was a mastodon skeleton that Peale thought would be interesting to the public. At that time the big bones found lying around were thought to be those of Biblical giants. Rembrandt Peale's skeleton proved that they were those of prehistoric animals. He built a museum for his mastodon, and as an added attraction lighted it with gas —also made on the premises. The public was so much more interested in gaslight that he started a gas company, in Baltimore, where two years before Francis Scott Key had written the "Star Spangled Banner." More than one gas company around there, to this day, jealously hangs onto the word "light" in its corporate title, no matter how many mergers it has been through in 150 years.

In this highly specialized age of our own, there is now some popular interest in the days of the Peales and the Murdocks. For educators are now trying to restore some of the humanities in technical education, teaching students history, literature, sociology, and the like. The Murdocks and Peales were called "philosophers," because while scientists then were metaphysicians, they had a direct interest in people. Our sciences and industries are more and more concerned with people. Management is discovering that it needs philosophers, as well as engineers and physicists. The young Smiths and Joneses will discover this in college or "tech," and recounting the history of gas might alert them to opportunities.

How the Gasworks Became a Brickyard

THERE were no patents in gas making, as in telephony and electricity, and therefore no great equipment companies like Western Electric and General Electric. The business grew up as hundreds of local gas companies, in cities and towns. Elsewhere people got along with candles and whale oil for lamps. Petroleum was still to be discovered. There was nothing like research in gas, or in industry generally.

Still, the next outstanding figure in gas was a researcher, an 18-year-old chemical student, famous as Sir William Henry Perkin, a true-born Englishman, whose discovery of aniline dyes is an oft-told story which should be brought up to date.

Young Perkin had no connection with the gas business, but became interested in its residuary tar, a nuisance. He found the first chemical dye in it, and eventually the "building block" foundations upon which our great chemical industries are based today.

The other day, some agricultural chemists succeeded in obtaining a single drop of what they called an "attractant." It was collected from the bodies of a half-million female gypsy moths. Nobody put a cost figure on it, but it is worth more than attar of roses, because it will fight insect pests like the gypsy moth, supplementing the costly spraying that is being used, which is opposed by citizens.

Such an attractant, in traps, can lure male gypsy moths to their death, something for a Kinsey report. A single drop will not go far, but enables chemists to break down its structure, and build a cheap synthetic attractant.

Coal tar was the first brickyard for these chemical building blocks, complexes of materials stored up by sunlight long ago, for the use of Man, when he knew enough to find and utilize them. Petroleum, natural gas, coal itself and shale are other storehouses.

Tell the chemists what you want, or let them find a natural product, like glycerin, a by-product of soap making, and they will quickly build a synthetic. Much of our glycerin today is a petrochemical, and alcohol.

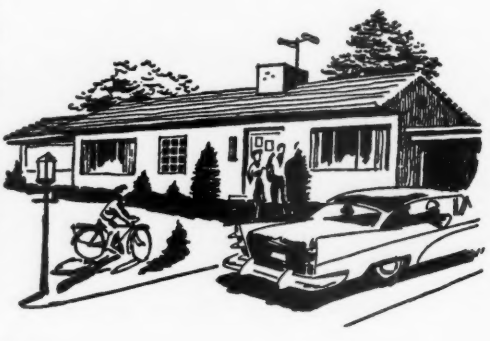
In Japan, to add zest to food, a food flavoring called monosodium glutamate has been used for years. After the war it was introduced in this country, and became popular in the kitchen, and in food processing. The Japanese made it from grain, but had surplus starch as a by-product, not easy to market. So, with the building blocks first discovered by young Perkin, they are making glutamate from petroleum, by a process that leaves no surplus by-product.

Some scientists believe that when we know about how nature laid away all these materials from sunlight, we will be able to explain how the universe was created.

"That will be the day!" say other scientists.

Gas Came Up with the First Motors

One chapter in the story of gas that has been utterly forgotten, even in the industry itself, is very short but might be retold to bring back to this generation some good old days that it never knew. Living in the present days of universal power, with motors built into every tool and gadget, even to open a can, it might impart a thrill of thankfulness.



Anyway, the 1870's were an age of steam, which brought a thrill. Steam had just taken the first passengers across the continent, through buffalo herds. Steam had just fought a modern war, especially at sea. Steam was laying the foundations for mass production. Steam was progress, and people reveled in it.

There was Jules Verne, who calculated that with steam it was possible to go around the world in eighty days, his first successful story. But steam would not do for Captain Nemo, in the *"Nautilus,"* so he used his imagination to power his submarine with electricity. And a queer kind it was—wholly in the realm of fiction. In 1851 a German physicist had developed the "Ruhmkorff coil," an early form of battery. It would hardly make a good car battery today, but it took Captain Nemo 20,000 leagues. Nobody in that day knew enough about electricity to criticize the story.

Boys of that day read dime novels written by an American "science" author who created a mechanical man, who drew a chariot at railroad speed, chasing Indians. Are there any kids still around who remember *"Frank Reade and His Steam Man"*? This author soon converted to electricity, for gyro airships, exploring unknown continents, chasing natives. His electricity was something like Jules Verne's.

That was a power-starved age. Steam was all right for railroads and factories, but little concerns that wanted fractional horsepower to run a few sewing machines had only small steam engines, with manifest disadvantages, such as slow firing up, belting, and danger of explosion. American industry was moving away from mill dams, getting nearer customers, and presently the Yankee tin peddler would be replaced by advertising and national distribution.

In Germany, in the 1860's, an early internal combustion engine had been developed by Nikolaus Otto, who improved it in the 1870's. It ran on city gas, and was the first form of power that could be bought from a utility company. The Otto engine was large, called for a considerable investment, but its four-cycle voice could be identified even today, in traffic: "Blip-blip-blip-*bang!*" Had there been finance companies, and had utility companies had their present spirit of selling . . .

However, then came Edison, with the electric motor.

When Gas Inherited the Kitchen Stove

Out, in the backyard, eating hamburgers under the gas lamp, the first they have ever seen, the Jones kids ask questions. "What's the big idea? Is gas any better than electric light?" So Jim Smith tells them a bedtime story:

"Once upon a time," he says, "before I was born, people lit their houses, and stores, and the streets, with gas. There wasn't any other kind of light until Thomas A. Edison invented electricity. Then gas disappeared. Electricity was modern. Gas never came back."

In the general population, as economists say, this yarn is widely believed. "What became of the gas companies?" the Jones kids might ask, and ought to be told.

Whether this fairy story has been cultivated for competitive purposes, to instill the popular belief that gas was done away with, whether the gas industry suf-

fers from an inferiority complex in consequence . . .

It isn't true, and people ought to be told how the loss of its lighting load stimulated progress in the gas business.

For city kids, the cow is now a zoo animal. Many of them have never seen one, and assume that milk comes in bottles, preferably chocolate flavor.

There are millions of grown-up city kids who, along the same line, would go to a "Good Old Times" show staged by a gas company. It would display the old coal and wood-burning kitchen range, with its hot water reservoir at the back, the base burner in the parlor, the coal hods, and ash cans and shovels and other tools for cooking and heating the hardest way. In contrast, there would be the latest gas equipment. There might be an old gasoline stove, the first effort to do away with drudgery—which Grandma was afraid of.

THE point of such a show would be to emphasize the progressiveness of gas, and the enormous conversion job performed by gas when it lost its lighting load.

Instead of the popular notion that electricity and gas are in a battle for each other's customers, the real situation would be better understood—that both have been working to develop different resources, and both have grown and prospered on the supposed competition.

The Welsbach mantle could be made interesting as an interlude.

If the Jones kids, in high school, were suddenly asked to name a half-dozen of the rare earth elements put at the bottom of the table, to get them out of the way, they would certainly flunk. One of the great advances of pure science, in the nineteenth century, was the creating of the table of elements by Dalton and Mendeleev. Many of the 92 elements in their arrangement were still missing. Mendeleev confidently predicted that they would be found.

Baron Welsbach led in discovering Nos. 57 to 71, filling a big hole in the table. He must have been asked the classic question, "Praseodymium? What is it good for?" His answer was to turn the flickering yellow gas jet into soft white light.

Nostalgia Can Be Put to Work

WHILE the Arkansas Louisiana Gas Company (Arkla) is a utility, it differs from most gas companies, especially those with a million meters, serving an

exploding population. Sixty per cent of its business is in natural gas, much of which it produces and distributes to meter customers through its own pipelines—which gives it freedom from underground storage problems of utility companies with larger volume, at a distance. There are also cost advantages in its direct-to-customers service. It is also in oil, with service stations, and is active in exploring for gas and oil. It manufactures gas appliances and other things, and is intent upon finding industries and jobs for communities in its territory.

This territory is made up of small towns in Arkansas, northern Louisiana, and a corner of Texas. The new census will probably show between six and seven million population. It has only two cities, Shreveport and Little Rock.

Arkla is a Johnny-come-lately company, dating back to 1954, when Witt Stephens acquired an oil company, with profits of $1.8 million that year. In 1959 its profits reached $100 million, about one-third from nonutility departments.

WHEN the good fairies dropped the camp gaslight into his lap, Stephens instantly saw the possibilities in its novelty, and popular interest. He saw the values in its nostalgic appeal. Nostalgia is a basic consumer motivation, which other industries are utilizing in selling, and making money with.

For example, there is Disneyland. For years Walt Disney incubated the idea of an amusement park where people could live in the past, travel on a Mississippi river boat with Mark Twain, stand up to a bar in a western town and drink coke. There were times when it seemed as though he were trying to hatch a china egg, for it would take millions to finance it on the scale he pictured. But its basic appeal was there. Every American kid now wants to see Disneyland, and to foreign visitors it outranks even Niagara Falls. There was the kid from Moscow, who was told he couldn't go!

Witness the outcry that goes up when some old building is to be torn down. It has outlived its original purpose, is about to fall anyway, the land it stands on is needed for a parking lot, or a substation. But sentimental citizens get out and picket for its preservation. Surveys generally show that this sentiment is not very deep. When the old structure is gone, it will die down, which is worth knowing when such uproars arise in utility construction.

"There goes another old hysterical landmark!" sighed a utility manager, after his company had weathered such a storm.

WITNESS the sentiment for the few old gas lamps still to be found in some communities. The citizenry insist that they be cherished. Witness the boom in Civil War reading—in a country that has since passed through four more wars.

Whether these reversions to other days are due to greater leisure, education, more reading, television, is a question. They are bedrock, and can be relied upon.

"The gaslight is a status symbol," says an Arkla executive. "Where else can you buy status for $30?"

The "Pizen" Is Sarsaparilla

IN the spirit of the thing, Stephens became nostalgic himself, and thought a buggy on his father's farm would be a touch of the good old days.

But where could you go to buy a buggy? Would it have to be a vintage rig, from an old barn, like the ancient motorcars prized by collectors?

Somebody directed him to a surviving buggy works in Indiana, where he bought a buggy. He bought the works, and another that had survived, and moved them down to give an industry and jobs to the Arkansas town of Emmet, employing about fifty town people.

With a buggy factory on your hands, where do you look for customers? A market survey disclosed a scattered demand for about 1,000 buggies yearly. The movies buy them for period pictures. So do television producers. There is a horsey set that needs buggies. And advertising people find publicity uses for them.

The buggy works also makes harness, and it has been found that there is still a demand for another American item that people laugh at, but buy—the rocking chair. Emmet makes rocking chairs, and several blind workers have jobs caning them.

Price tags on buggies range from $205 for a slat cart to $775 for a three-seater surrey with fringe, rubber tires, and all.

Emmet has been turned into a gaslit horse-and-buggy town, with blacksmith shop, gristmill, jail. Motorists see atomic-age America stop by for gas, at a company service station, and treat each other at a soft drink bar. They really go back, for the beverage is sarsaparilla.

Calling All Other Gas Companies!

ARKLA is widely engaged in manufacturing. With the purchase of Servel three years ago, Mr. Stephens eased the

gas industry's competitive handicap on refrigeration and conditioning. Its Evansville, Indiana, plant is a center for gas equipment research and invention, and the company has manufacturing enterprises in its utility territory—makes cement, chemicals, fiberglas products. Manufacturing enterprises have been located in Arkla towns, and as jobs are created, residences are built, meters increased—last year the company added around 12,000 meters, many of them industrial. Its $100 million 1959 revenue was roughly two-thirds natural gas, one-third manufacturing.

SEEING his mail order gaslight was something more than a fad, Stephens immediately began manufacturing lamps, for his own and other companies to sell. Right away, unsuspected lighting uses were found. Its beauty and economy make it a prime residential article for outdoor lighting. It is excellent light for churches, halls, markets, and parks. New designs are steadily developed, and present sales are running up toward 200,000 yearly.

Gas control, turning the lamps up and down according to daylight, has been developed, using flame-generated electricity, and the company has just lately gone into a larger field with gas signs, something truly competitive. Ever since the days of the single bulb shop sign, reflected from a short word, "EATS," there has been a demand for economy as well as novelty in shop signs. The Arkla "Gasign" has both, is automatically controlled, and, although introduced only last December, has already begun going to town. It is believed that the potential market is unlimited.

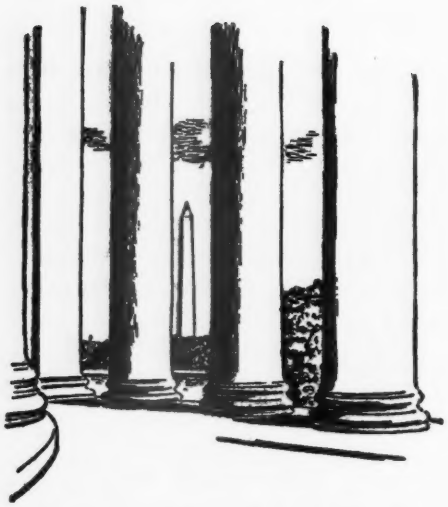
ARKLA is demonstrating the progressiveness of gas with such projects as the Coachman's Inn, opened last year, in downtown Little Rock. It is a luxury motel, and everything except indoor lighting is done with city gas, which furnishes outdoor lighting. The place is conditioned with Arkla equipment, heating as well as cooling, and Nikolaus Otto might like to sleep there. For all electricity is generated by gas power.

Witt Stephens has appointed himself as general sales director for the entire industry, giving it new things to sell, and training its sales people in Evansville and Little Rock. He estimates that gas companies have three times as many trained sales people today as they had a year ago —and is constantly increasing the number capable of going out and doing a professional job.

Briefly, gas seems to have got itself a boy!

"EXCESSIVE tax rates breed a host of uneconomic practices. The 52 per cent tax on corporate earnings is an eloquent example. The inefficiencies and extravagances committed under the absolving license of 'What does it cost after taxes?' have softened the tone of a whole business generation. The habit of automatically converting every proposed expenditure—including wage and salary increases—into 48-cent dollars does not make for managerial keenness."

—EXCERPT from The Morgan Guaranty Survey, published by Morgan Guaranty Trust Company of New York.



Washington and the Utilities

Is House Regulatory Probe Nearing the End?

THERE are rumors circulating around Washington to the effect that the end is in sight for the House Legislative Oversight Subcommittee. Reports are to the effect that regardless of who wins the presidential election, the subcommittee, which has critically examined the major federal regulatory commissions, has done its work and early next year will turn over its remaining leads and files to the full House Interstate and Foreign Commerce Committee for any further legislation which might be necessary.

There are, of course, political cynics who say that the real reason is that the subcommittee has been milked of its campaign capital. But it is generally agreed that much useful and important information came to light during the somewhat hectic two years of the subcommittee's investigations.

Representative Harris (Democrat, Arkansas), who would still head the House group assuming that the Democrats organize the next House of Representatives, is said to feel that most of the basic information required by the full House Interstate and Foreign Commerce Committee, to carry out work on needed legislation, has been assembled. Routine committee hearings in the new Congress could fill in any gaps and the present subcommittee investigation staff could then be disbanded. Harris declined to take this view publicly, pointing out that the new Congress will present "a new situation."

THERE will, of course, be more legislation flowing, at least indirectly, from the subcommittee's investigation to date. Already on the statute books are laws banning "payola" and rigged quiz shows which were some of the more sensational revelations of the subcommittee's work. It would be necessary for the House to take affirmative action to reactivate the special subcommittee. House Speaker Rayburn (Texas), who would resume that post in a Democratic Congress, is not regarded as enthusiastic over carrying on the special subcommittee's investigations. If by any chance the Republicans should organize the next House, a new lease on life for the Legislative Oversight Subcommittee would be even less likely.

Still pending before the subcommittee are a few matters, such as alleged irregularities in the regulation of the trucking industry by the Interstate Commerce Commission. Various alternative bills to correct procedural shortcomings of the federal regulatory commissions are still marking time, although technically killed by the adjournment of the 86th Congress. But attention from these has been diverted, temporarily at least, by the recent action of President Eisenhower in setting up a conference of the "big six" regulatory agencies to study ways of speeding up their work. There is a possibility that such a conference of regulators, practitioners, etc., might be able to work out a system of rules and regulations which would not require very much, if any, new statutory reinforcement from Congress. Neither of the rival presidential candidates has shown any particular interest in this general subject. All bills in Congress, of course, will have to be reintroduced next year and both the House and Senate would have to authorize their respective special investigation activities, if they so desire, independently of White House approval.

Municipal Gas Elections

DURING the past year, two elections in widely separated parts of the United States have been won by gas companies opposing municipal ownership advocates. The first, in Corpus Christi, Texas, was a franchise election in which Houston Natural Gas Company was pitted against the yardstick of an adjacent municipal operation. The second, in Knox, Indiana, involved the authorization of a new municipal utility to serve the town. The municipal ownership proposal in Knox was defeated 812 to 233, a margin of 4 to 1; and, Northern Indiana Public Service Company, the utility which sought to serve the community, received a franchise late in June.

In Corpus Christi, a unique situation faced Houston Natural. For twenty years, the company has carried on its gas distribution business in outlying areas of the city, starting with wartime service to the sprawling Corpus Christi Naval Air Station. Since 1922, however, the city itself has had a municipal gas utility—supplied first from local wells, then by Republic Natural Gas Company, and finally, in recent years, by Houston Natural in the dual rôle of city gate gas supplier.

Municipal ownership has created a series of crises dating back to 1944, when Houston Natural's growing business first collided with the city's desire to grow through the familiar route of annexation. During the ensuing fourteen years, the company endured a series of emergencies involving short-term franchises, problem-solving commissions, and swaps back and forth of facilities.

THE situation came to a head late in 1958 when the city council decided to exercise a 1955 option to purchase Houston Natural's property within the city limits. It was the council's act which precipitated, at last, a decisive election vote on the company's future.

In January, 1959, an intensive public opinion poll was taken for the company. The results indicated a 2-to-1 advantage, but a substantial undecided vote. This was not enough. The election was called for July 11th. In the short interval, the company called upon its friends' resources and its own to organize what became one of the most effective utility election campaigns on record—with 90 per cent of it based on the proven good citizenship of the company.

The January opinion poll showed that the most potentially damaging feeling about the company was that it was considered an "outsider"—even after twenty years of service. Therefore, the company based its campaign on the proven facts of its community citizenship.

Just before the election, a series of newspaper advertisements was run featuring the names of 273 prominent citizens who favored the company. Suppliers and other companies with which Houston Natural had business associations wrote to their friends, business and personal, among the city's voters to urge a favorable vote for the franchise. Employees throughout the company's system wrote or sent post cards to friends and relatives in Corpus Christi asking them to support Houston Natural. The same effort was made among local stockholders.

THE final result was that on election day the city voted 13 to 1 in favor of the franchise—a far cry from the 2-to-1 indicated majority. According to the Corpus Christi *Caller-Times,* a total of 6,563 votes were cast—some 2,000 more than the experts thought possible in this type of election. The tally was 6,095 for and 460 against a 30-year franchise for Houston Natural. The mayor said it appeared the council had a clear mandate to write up a 30-year franchise. His election day statement was later borne out by the council's action.

FPC Notes Record Pipeline Building

THE Federal Power Commission has authorized construction of $846,677,000 in new interstate natural gas transmission facilities, including nearly 9,400 miles of pipeline during fiscal 1960. So reported FPC Chairman Kuykendall last month. The authorized transmission building adds more than 10 per cent to the total dollar investment in all interstate pipeline facilities approved by the FPC since 1942, when the present certificate provisions of the Natural Gas Act became effective. The new facilities are designed, Kuykendall said, to add more than 3,250,000,000 cubic feet daily to the natural gas delivery capacity of the nation's individual transmission systems. He said that 120 cities of 50,000 population or more would benefit from these new pipeline projects.

The largest single authorization during the 1960 fiscal year was that issued to Transwestern Pipeline Company of Houston, Texas, for a new Texas-to-California transmission system. The increase in gas delivery capacity in fiscal 1960, while setting a record high, was only slightly more than the previous year, Kuykendall pointed out. There have also been an increasing number of projects that involve the improvement and assurance of continuity of service through the acquisition of new and additional gas reserves, the expansion of storage facilities, and the rearrangement and replacement of less efficient and antiquated facilities. More and more underground storage would increase utilization of maximum capacity.

Political Side Lights Affecting Gas

THE Democratic vice presidential candidate, Senator Johnson, denies that the election of Senator Kennedy would mean the end or the curtailment of the 27½ per cent depletion allowance for taxes. Senator Johnson stated flatly that the Democratic platform contains nothing to suggest a reduction in the depletion allowance. Johnson interpreted the language in

the platform as applying to "tax loopholes" generally, and said that "oil and gas were not even mentioned in the platform plank." He suggested critics read the platform. The passage in question actually contains the following sentence:

> Among the more conspicuous loopholes are depletion allowances which are inequitable, special consideration for recipients of dividend income, and deductions for extravagent "business expenses" which have reached scandalous proportions.

Secretary of Interior Seaton said last month in Texas that he favors retention of the 27½ per cent oil and gas depletion allowance. The Texas reaction was enthusiastic. Seaton said if the Republicans win in November there would not be any bills tampering with depletion coming out of the White House. Seaton was told that Senator Smathers (Florida) and Representative Ikard (Texas), both Democrats, had said that a Democratic administration would not press for a reduction in the allowance. Seaton did not know whether Senator Kennedy would concur in this idea.

SECRETARY Seaton has announced that the new helium conservation program authorized by Congress is "so vital to the future of the nation" that the government will go ahead on its own if private industry will not take part. The new law permits the government to make contracts with private industry for the purchase of helium on a long-term basis. Funds to get the program under way are not yet available. However, Seaton said he would ask for specific authority to borrow money from the Treasury when the next Congress convenes.

Another aspect of the program involving helium is the conservation of about 52 billion cubic feet of the lighter-than-air gas, which is now being wasted in natural gas fuel. The natural gas industry has been reported as generally favorably disposed to co-operating with the Interior Department. Helium plants are to be built along the transcontinental pipelines, principally lines carrying gas from the Hugoton fields of Kansas and Oklahoma, and the Panhandle of Texas, it was reported.

Midwestern to Sell Temporary Gas to American Louisiana

AN FPC examiner, Samuel Binder, filed a decision on September 8th, subject to review by the commission, authorizing Midwestern Gas Transmission Company, of Houston, Texas, to sell natural gas to American Louisiana Pipe Line Company, of Detroit, Michigan. The authorization permits the sale and purchase of up to 80 million cubic feet of surplus interruptible gas per day on an "as, when, and if available basis," at 28.33 cents per thousand cubic feet. The FPC, on June 15th, granted Midwestern temporary authority to make the proposed sale.

The gas will be taken by American Louisiana at an existing interconnection in Spencer county, Indiana, and delivered to two affiliates—Michigan Consolidated Gas Company and Michigan Wisconsin Pipe Line Company, both of Detroit. The affiliated companies will inject the gas into storage for later use during peak periods. Binder said it was clear from the evidence that there is a need for this gas by the American Louisiana system, at least for the period covered by the proposal, and that it will serve the public interest to permit the sale.

Telephone and Telegraph

Telephone Automation Report

THE congressional Subcommittee on Automation and Energy Resources of the Joint Economic Committee has received a number of reports regarding the progress and implications of automation in the telephone industry. An extensive report was filed by the American Telephone and Telegraph Company on behalf of the Bell system companies. The reports represent an updating of testimony on the subject which was given to the committee some five years ago.

AT&T's report points out that since 1920 automation has been advancing through the installation of the dial system. About 96 per cent of the 59 million Bell system telephones are now dial-operated as compared with 85 per cent in 1955. About 730,000 persons are working in the Bell system companies which represent more than two and one-half times the number employed in 1920 when conversion to the dial system began.

As a result of automation, service has improved, the report states. A three-minute, coast-to-coast call took as long as ten minutes to place and cost $16.50 in 1920. Today the same call can be placed in less than a minute and costs only $2.25.

The report stressed that automation has improved service while keeping the cost of service down. Not only has long-distance service improved but local service also has benefited from the technological advances of automation. In 1956 the first transatlantic telephone cable enabled AT&T to provide voice circuits that equal the best land-line circuits.

ANOTHER benefit of automation has been the creation of new industries and vast contributions to the national defense. As an illustration of this, the report notes the development of transistors which replace vacuum tubes. This industry, born only a few years ago, is estimated to have had gross sales last year in the neighborhood of $500 million. Some 90 companies are active in the field, accounting for some 40,000 employed persons. The national defense has benefited from the Bell system's work on such projects as SAGE air defense system, the DEW line, the Nike Ajax rocket, and solar batteries on the Vanguard I satellite.

The effect of automation on investment and business was also noted and the report states:

> Savings of the American people must continue to be attracted into the

telephone business if this nation is to have the communications services it needs. In 1959 expenditures for construction totaled $2,250,000,000. This year we will spend $2.6 billion. Although these expenditures will be mainly for growth, there will be large amounts expended for improvements and automation. Construction programs of this size require that the business attract nearly $1 billion of new capital each year.

Probably the area of employment causes more concern than any other when the subject of automation is brought up. The AT&T report indicates that employment has risen and that the employment of a large number of people is possible because automation has enabled the line on costs to be held down. This has allowed the industry to furnish telephone service at a price which nearly every American household can afford. The report states that without automation telephone services would long ago have been priced out of reach of a large number of subscribers.

THERE has been a reduction of operators but this has been offset by additions to the work force. In the past five years, annual wages, salaries, and other payments to employees have increased by $997 million, reflecting not only higher wages and benefits but also increased numbers of persons employed.

The report forecasts that within the next few years the number of dial telephones will reach almost 100 per cent. Also the direct distance dialing system will be expanded. An expanded ocean cable system will also be initiated in the next few years, including links to Bermuda, the Caribbean, South America, the Far East, and Europe. AT&T also indicates that radiotelephone communications using satellites are in the not too distant future.

It is AT&T's opinion that automation will continue to change the nature of some telephone jobs. However, it is expected that these changes will be of an evolutionary nature which will minimize any adverse effect of such changes on personnel.

Western Union Plans Record Outlay

WESTERN UNION is planning a $105 million expansion program for next year, the greatest in its history, a company official announced in Washington last month. Edward F. Sanger, vice president of public relations of the telegraph company, outlined the record capital outlay in a talk before the twelfth National Mutual Fund Dealers Conference. He stated:

> We are pushing rapidly ahead with the greatest building and expansion program in our history. Net capital expenditures of $105 million for plant and equipment are scheduled for next year, on top of $45 million this year.
>
> We are constructing a new coast-to-coast microwave network that will handle every known form of electronic communication, including facsimile, and vastly increase our capacity.
>
> We are building the world's largest and most sophisticated data system, called COMLOGNET, for the Air Force and, at the same time, are rapidly expanding our new direct-dial telex service to reach 127 cities by 1962.

Sanger told the mutual fund dealers that many revolutionary changes can be expected in the field of electronic communications. "The science and technology of communications are destined to change

more radically in the next ten years than they have in the past fifty, due to the continued growth in computers and electronic data processing," he said.

FCC Upholds "Option Time"

By the narrowly divided vote of 4 to 3, the Federal Communications Commission has granted television networks an important verdict by upholding the continued use of "option time" contracts. Option time contracts are those between TV networks and affiliated stations under which the stations agree to accept and broadcast network programs during designated hours—usually the prime viewing hours between 8 P.M. and 11 P.M. This enables networks to assure national advertisers that the programs they sponsor will be broadcast at desired times.

In condoning the practice, the four-man FCC majority—Commissioners Lee, Craven, Cross, and King—ruled option time "is reasonably necessary for successful network operations and is in the public interest." Nevertheless, the group placed some new restrictions on the practice.

Chairman Ford and Commissioners Hyde and Bartley, the dissenters, sided with the Justice Department in concluding that option time violates the Sherman Antitrust Act. By putting the commission in "apparent conflict" with the antitrust laws, the dissenters warned, the majority opinion "undertakes to sanction the protection" of networks and could lead to more extensive federal regulation of broadcasting.

Option time is still subject to further action against it by Justice Department trust-busters. The FCC majority opinion conceded that the commission has no power to pass on "antitrust issues as such." Therefore, its opinion can neither bind the Justice Department nor prevent any court from ruling that option time violates the antitrust laws. But the majority ordered new option time restrictions which it contended "will expand the freedom of program choice of affiliated stations and the competitive opportunities of non-network elements while at the same time not endangering television network operations."

The restrictions: Reduce to ten hours from twelve hours the total daily time that a TV station may option to networks. The cutback slices option time to two and one-half hours from three hours in each of four segments of the broadcast day: 8 A.M. to 1 P.M.; 1 P.M. to 6 P.M.; 6 P.M. to 11 P.M.; and 11 P.M. to 8 A.M. Decree that "straddle" programs—those partly within and partly outside option time—will not count as option time for those portions outside the hours allotted for network programing. Take, for example, a station that agrees to option the time between 8 P.M. and 10.30 P.M. If it carries a network program between 7.30 P.M. and 8.30 P.M., the half hour between 7.30 and 8 does not count as option time. The network still is entitled to the time until 10.30 P.M.

Give stations more flexibility, ranging from twenty-eight days to 119 days, to advise networks whether they agree to option time; past rules had set a flat 56-day limit. Grant a station the right to refuse to broadcast a network program even though the network has an option on the time involved. Permit a station to substitute a program it considers to be of greater "local or national importance" for a network program even though the time has been optioned.

Financial News and Comment

By OWEN ELY

Net Income of Pipeline Companies up 19.8 Per Cent

NATURAL gas pipeline companies made an excellent showing for the twelve months ended June 30, 1960, with net income gain nearly one-fifth. According to FPC Release No. 11108, the number of consumers increased 5.9 per cent and total Mcf sales about 9 per cent, while revenues gained 17.6 per cent. Under the heading of revenue deductions, production expenses and cost of purchased gas were up 20.1 per cent, while other expenses increased in smaller proportion, the gain for total expenses being 15.8 per cent. Depreciation, depletion, and amortization increased 14.4 per cent. Total taxes gained 29.7 but a substantial part of this gain was due to the increased provision for deferred taxes which rose from $35.8 million to $56.4 million.

Total deductions from revenues were thus up 17.2 per cent, slightly less than the gain in revenues. Miscellaneous income showed a substantial increase, pushing the gain in gross income to 20 per cent. Interest charges on long-term debt were up 14 per cent; but with a substantial decline in the credit for interest charged to construction, total income deductions were up 20.4 per cent; the resulting gain in net income was 19.8 per cent. Net gas utility plant at $7,110 million was up 6.2 per cent; construction work in progress as of June 30th was only $341 million, about half that of the previous year.

COLD March weather had helped push monthly gas sales in that month to 10.4 billion therms, 16 per cent over a year ago and the highest ever recorded in a single month. The 1.2 million new house-heating customers also explained the increase; consumption by residential, commercial, and other customers showed a 25.7 per cent increase, while the gain in industrial sales was less than one per cent.

As shown in our accompanying table, "Financial Data on Gas Utility Stocks," page 573, the latest interim earnings statements for pipeline and integrated gas systems show an average unweighted gain of 13 per cent in earnings per share over the previous twelve months' periods, and

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the same gain is shown for retail gas distributors. While some of these gains are doubtless due to increased revenues collected under bond (resulting from rate increases added to the FPC backlog for future determination), as well as more favorable weather conditions, nevertheless they indicate that the industry is still growing rapidly and maintaining a healthy earnings trend. This has resulted in better prices for gas utility stocks: As of September 14th Standard & Poor's index of six pipeline stocks stood at 69.72 compared with the year's range of 70.25-62.20. The index of 11 gas-distributing stocks made a new high of 53.36 compared with this year's low of 46.84.

Coal versus Gas—a Political Feud?

Of the four major sources of national energy, gas increased from 13.7 per cent of the total in 1945 to 30.9 per cent in 1959, and petroleum from 30.7 per cent to 37 per cent, while coal dropped from 51.1 to 27.9 per cent and water power remained about even at a little over 4 per cent. Gas has, therefore, enjoyed a phenomenal growth due mainly to increased use for house heating; the number of customers has increased about 3 per cent per annum, while increasing use per customer accounted for the remainder of the 8 per cent gain in sales.

As a result of losing ground, coal interests have turned to Washington for political help. Their representatives have intervened in various hearings before the Federal Power Commission regarding the expansion of gas pipelines, etc., and they have been attempting to have a joint congressional committee set up to study a "National Fuel Policy," obviously designed to favor the coal industry.

The Empire Trust Company's Letter of August, 1960, discusses this campaign and urges that consumers be allowed to retain "freedom of choice in a free economy." President Henry C. Brunie points out that the American worker has ten times more available power than the average workman elsewhere in the world, and our great national economy has been built up through the incentive of competition rather than as a regimented economy. In the past twenty years our production and personal income per capita have almost tripled. With only 6 per cent of the world's population we use nearly 40 per cent of the world's mechanical energy.

The problem of energy resources is not new—Congress has been investigating it almost continuously since the 1930's, with many thousands of pages of congressional testimony. In fact a current investigation is being carried on by the Joint Economic Committee's Subcommittee on Automation and Energy Resources. Government agencies and private organizations have reached the general conclusion that exhaustion of oil resources is not a cause for concern at present and that the consumer should retain freedom of choice in using fuels.

But the advocates of Senate Resolution 73 (and a companion House measure) were not merely seeking further study of fuels—what they really wanted was "optimal allocation" of various fuel and energy resources "to their most productive economic uses." This means federal regulation to restrict the uses for each energy and dictate the markets in which it can and cannot be sold. An example of such a move has been the effort to prevent Consolidated Edison and some other utilities from using gas for boiler fuel on the plea that it should be retained for residential and commercial use.

Mr. Brunie states:

More simply, government-enforced end-use controls could mean that certain classes of consumers would be prohibited from burning oil or natural gas and compelled to burn coal. This is supposed to be done to conserve our energy resources. Oil and gas are too valuable, it is claimed, to be used for any but the most important purposes. Therefore the government must direct that coal be burned wherever possible for inferior purposes to save oil and gas. . . . End-use controls thus establish monopoly markets, restrain competition, and tend to eliminate competitive pricing when they eliminate the freedom to sell and the freedom to buy.

THE agitation for a new fuel policy is based on the prediction that oil and gas reserves are being used up faster than coal. It is contended that we now have oil reserves sufficient to last only thirteen years and gas adequate for twenty-three years, while coal reserves will last for centuries, it is claimed. We have been hearing this kind of forecast since 1925, Mr. Brunie points out, yet no scarcity of oil and gas has yet occurred. A distinction should be recognized between the reserves. No further deposits of coal are likely to be found, hence these reserves are "static." Moreover, estimates of *recoverable* coal reserves have been going down for the past forty years and the U. S. Geographical Survey now estimates recoverable coal at less than a trillion tons compared with the estimate of 3.5 trillion in 1918; and even this figure has been scaled down to as little as 30 billion tons based on terms of price competition with competing fuels.

On the other hand, oil and gas reserve figures are based only on deposits discovered thus far, and on present-day methods of recovering oil and gas. Despite rapidly increasing use of oil and gas, discoveries of new fields and further development of present fields, together with new methods of increasing the transfer of oil and gas to the surface, have resulted in a steady increase in proven reserves. Large new reservoirs of oil and gas continue to await discovery both in Canada and the United States and the tremendous deposits of shale are an additional reserve.

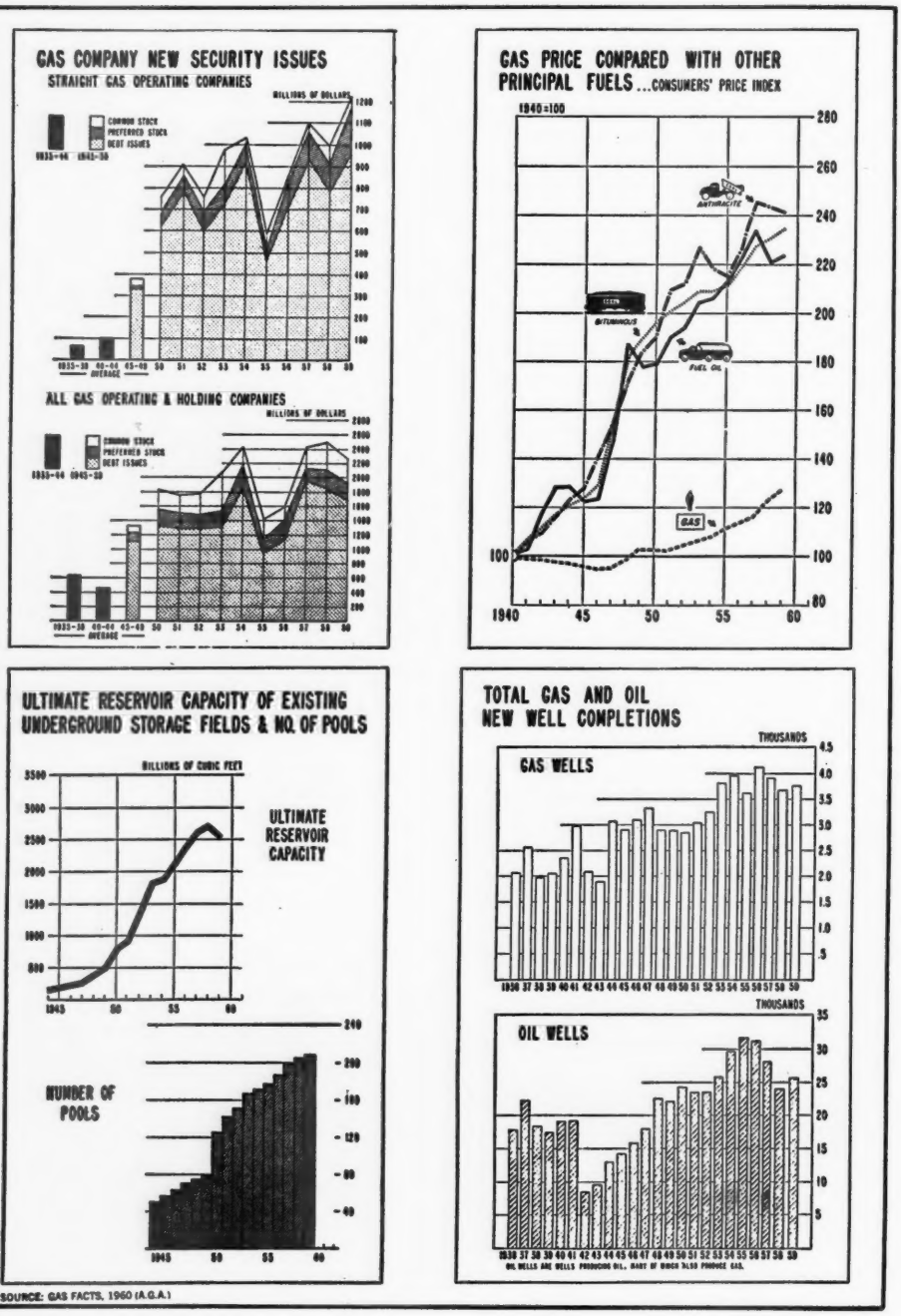
MR. BRUNIE points out that so long as the nation avoids tax policies and restrictive controls that would create artificial obstacles to the exploration for oil and gas, they will continue to be abundant. With this assured, competition rather than control is the best method of meeting the nation's energy needs best, at lower cost.

While coal's "study" resolution aimed at a national fuels policy in its own interest expired in committee, it appears likely that the effort may be renewed in January when the new 87th Congress convenes. While nothing was done in the recent session about the 27½ per cent depletion allowance, this will doubtless also come up for discussion, in connection with the proposed general overhaul of the Tax Code.

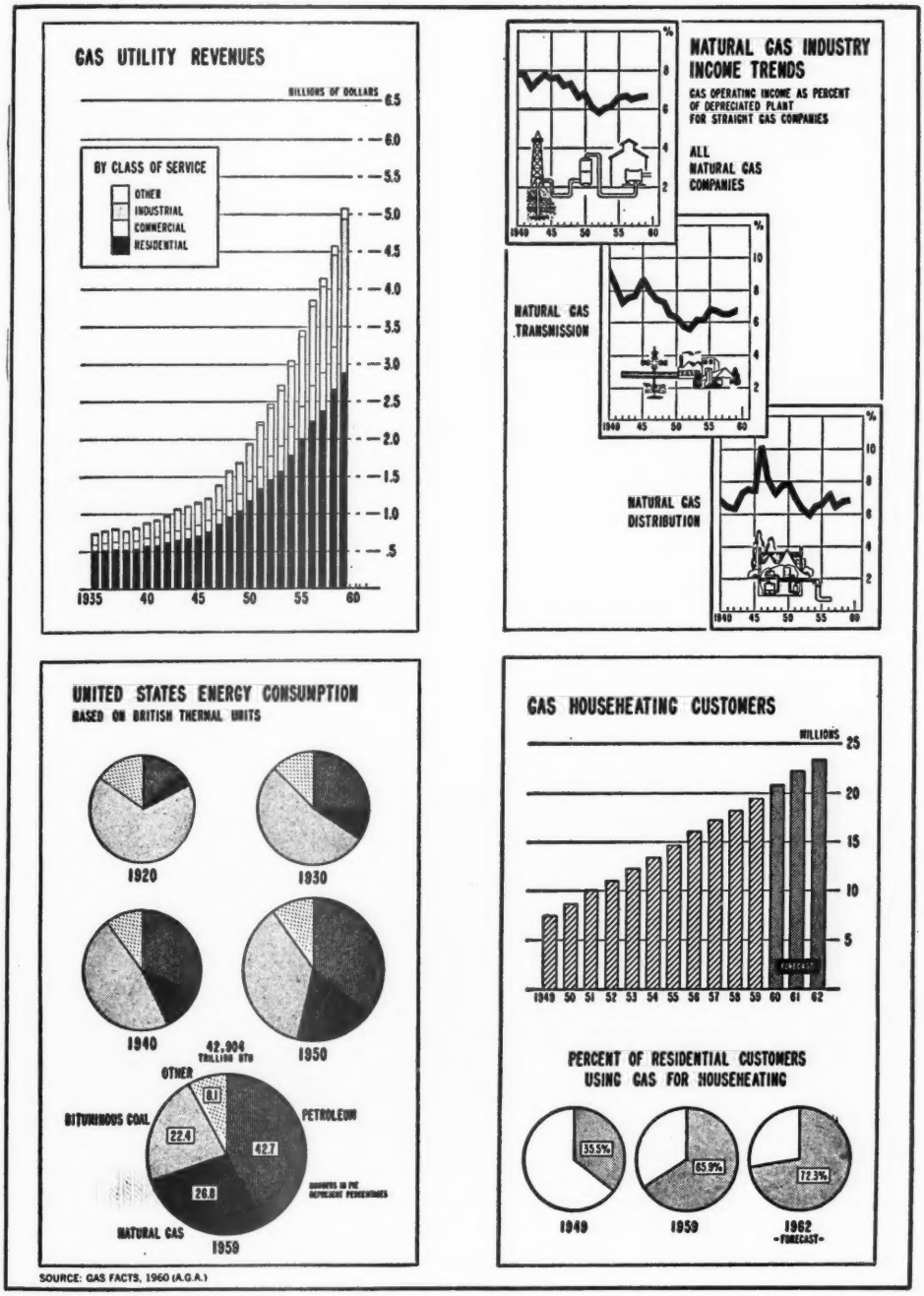
Maintenance of the 27½ per cent oil and gas depletion allowance is naturally of great importance to gas producers. Secretary of Interior Seaton stated recently in Texas that he favored its retention and that if the Republicans win in November, there will not be any bills tampering with depletion originating in the White House. The attitude of the Democratic presidential candidate is said to remain somewhat in doubt at this time.

Is a New Recession Shaping Up?

THERE have been three moderate recessions in the postwar period—1949, 1954, and 1958—when the FRB index de-



SOURCE: GAS FACTS, 1960 (A.G.A.)



SOURCE: GAS FACTS, 1960 (A.G.A.)

clined 5 per cent, 6 per cent, and 7 per cent (on a calendar year basis), respectively. Now a new one—well advertised in advance, like hurricanes Donna and Ethel—seems to be creeping on us, presumably to be known as the 1961 recession. The stock market is discounting it—the Dow-Jones industrial average penetrating 600 after holding at this resistance level on three previous occasions. Is the recession inevitable, or can we maintain the present plateau of business prosperity?

The Federal Reserve Index held at 109 in August compared with 110 in July, 109 in June, and 111 in January. On the other hand, the *Times* weekly index has declined from 233 in January to 209 recently, and *Business Week's* index dipped from 161 in February to 145 (the latter comparing with 150 a year ago). The principal laggard, of course, has been steel, but now it is predicted that operations will rebound to 54 per cent in the week beginning September 19th, compared with 49 per cent two weeks earlier.

OTHER grains of comfort are the 10 per cent increase in sales of new cars in the first one-third of September, and the optimistic plans of motor manufacturers to step up production—they are giving dealers bonuses to get rid of heavy stocks of old models. Housing starts in August were 8 per cent over July—though down 12 per cent from 1959. Machine-tool builders are hopeful of a full pickup in orders, but have their fingers crossed. Retail trade has made a good showing until recently and the 2 per cent dip in the week ended September 10th is attributed to hurricane Donna. Personal income continued to gain moderately in August to a new record high of $407.6 billion. Federal payrolls are increasing and the Department of Defense has about $500 million in defense contracts which can be "thrown into the hopper" before election if necessary.

There is some concern over unemployment, now close to 6 per cent, but employment figures also remain high, though there is said to be an increasing amount of "part-time" work. Weak spots are California and Washington (due to reduced aircraft and lumber production), Detroit (due to increased automation of the automotive industry), and the steel and copper-lead-zinc mining areas. Industries said to be suffering from increased imports are glass, china, pottery, and plywood.

ONE basic difficulty appears to be the reduction of inventory-sales ratios by industry. According to *Business Week* (September 3rd), the ratio of inventories to sales for all trade and manufacturing companies has declined from the 1949-57 average of 1.56 to a current level of 1.45. One reason is that profit margins have been slipping and manufacturers are "tightening up." Computers are being introduced to make more efficient use of inventories and thereby reduce stocks on hand. A more important factor is that deliveries in many cases have now speeded up, especially in steel. This is aided by the growth of private truck fleets which offer "unitized" control of deliveries and production; the railroads have also improved their delivery schedules. Finally, the relatively stable price level makes it unnecessary to build inventories as a hedge against higher prices. This new development, while discouraging during this readjustment period, in the long run may help to stabilize the economy, *Business Week* points out.

The duration of the present recession may, therefore, depend somewhat on the length of time required to complete this adjustment. The longer-term outlook will depend as usual on domestic and international politics, resulting fiscal and arma-

ment policies, and the extent of the general public's confidence in the strength and stability of the economy.

Municipal Ownership of Gas Making Inroads in Florida

FLORIDA municipalities are actively taking over new markets for natural gas in Florida; at least 24 municipal gas utilities are now in operation or under construction, obtaining gas from the new Houston Corporation lines. Prior to the entry of Houston's pipelines, Florida's larger cities were taken care of by a few established manufactured gas utilities, while some resort and rural areas used LP-gas. But the entry of natural gas did not bring an immediate changeover because the average cost of gas is rather high (being transported from Texas and Louisiana) and some of the LP-gas dealers are continuing to fight for business. Anticipated construction of new pipeline facilities by Houston Corporation (on which hearings have been under way with the FPC) will bring gas to many additional Florida municipalities.

There are now only 17 investor-owned gas distribution systems in Florida but several of these serve a number of communities so that their total number of customers still exceeds those of the municipal utilities by a wide margin. Moreover, some municipalities, including Plantation, Lake Wales, and Dade City, have voted down municipal ownership, allowing private enterprise to do the job.

FINANCIAL DATA ON GAS UTILITY STOCKS

Annual Rev. (Mill.)			*9/14/60 Price About*	*Dividend Rate*	*Approx. Yield*	*Recent Share Earns.*	*Per Cent Increase In Share Earn. Recent*	*5-yr. Aver.*	*Price-Earn. Ratio*	*Div. Pay-out*	*Approx. Common Stock Equity*
		Pipeline and Integrated Systems									
$ 6	O	Ala. Tenn. Nat. Gas	24	$1.20	5.0%	$1.57Je	8%	8%	15.3	76%	43
227	S	American Nat. Gas	73	2.60	3.6	4.78Je	10	7	15.3	54	40
111	A	Ark-Louisiana Gas	35	1.00	2.9	1.71Je	11	50	20.5	59	40
62	O	Colo. Interstate Gas	39	1.25r	3.2	1.77Je	NC	11	22.0	71	26
465	S	Columbia Gas System ..	21	1.00	4.8	1.53Je	11	6	13.7	65	45
21	O	Commonwealth N. G. ..	24	1.10	4.6	1.76Je	12	6	13.6	63	52
324	S	Consol. Nat. Gas	49	2.20	4.5	3.45Je	12	3	14.2	64	58
452	S	El Paso Nat. Gas	34	1.30	3.8	1.66De	3	11	20.5	78	21
55	S	Equitable Gas	39	1.85	4.7	2.51Je	D4	11	15.5	74	46
36	O	Houston N. G.	31	.80	2.6	1.84Jy	57	22	16.8	43	20
24	O	Kansas Nebr. Nat. Gas .	24	1.04	4.3	1.85Je	22	6	13.0	56	36
125	S	Lone Star Gas	43	1.80	4.2	2.41Je	4	6	17.8	75	43
88	S	Miss. River Fuel	34	1.60	4.7	2.19De	12	5	15.5	73	50
31	S	Montana Dakota Util. ...	30	1.20	4.0	1.95Je	10	5	15.4	62	30
29	O	Mountain Fuel Supply ..	28	1.20	4.3	1.82Je	3	4	15.4	66	53
94	S	Natl. Fuel Gas	24	1.20	5.0	1.74Je	D9	6	13.8	69	52
159	S	Northern Nat. Gas	32	1.40	4.4	2.15Je	26	7	14.9	65	32
43	S	Oklahoma Nat. Gas	30	1.24	4.1	2.19Je	13	5	13.7	57	34
137	S	Panhandle East. P. L. ..	44	1.80	4.1	3.30De	18	9	13.3	55	38
226	S	Peoples G. L. & Coke ..	65	2.60	4.0	4.33Je	10	8	15.0	60	43
33	O	Pioneer Natural Gas ...	26	.88	3.4	1.40De	27	9	18.6	63	41
122	S	Southern Nat. Gas	39	2.00	5.1	2.10Je	7	—	18.6	95	36
46	O	Southern Union Gas	25	1.12	4.5	1.50De	7	3	16.7	75	29
463	S	Tenn. Gas Trans.	22	1.10	5.0	1.30Jy	29	17	17.0	85	26
296	O	Texas East. Trans.	32	1.40	4.4	2.47Je	24	4	13.0	57	21
116	S	Texas Gas Trans.	32	1.40	4.4	2.47Je	24	4	13.0	57	21
147	O	Transcont. Gas P. L. ...	22	1.20b	5.5	1.18Je	2	6	18.2	102	20
354	S	United Gas Corp.	33	1.50	4.5	2.16Je	D8	2	15.3	70	41
		Averages			4.3%		13%	9%	15.9	67%	

Annual Rev. (Mill.)		(Continued)	9/14/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earn. Ratio	Div. Pay-out	Approx. Common Stock Equity
		Retail Distributors									
34	S	Alabama Gas	32	$1.60	5.0%	$2.79Je	40%	1%	11.5	57%	35
57	O	Atlanta Gas Light	39	1.80	4.6	3.60Jy	50	6	10.8	50	39
3	O	Berkshire Gas	20	1.00	5.0	1.18My	D19	6	16.9	85	41
7	A	Bridgeport Gas	30	1.68	5.6	2.05Je	D22	5	14.6	82	48
6	O	Brockton-Taunton Gas ..	21	1.00	4.8	1.22De	D6	14	17.2	82	41
89	S	Brooklyn Union Gas ...	29	1.20	4.1	*1.78Je	* 9	* 6	*16.3	67	42
45	O	Central Elec. & Gas	28	1.20	4.3	1.94Je	14	9	14.4	62	18
14	O	Cent. Indiana Gas	15	.80	5.3	.95Je	25	—	15.8	84	58
6	O	Chattanooga Gas	4½	—	—	.44My	30	—	10.2	—	44
16	O	Elizabethtown Gas	39	1.60	4.1	3.36Ap	21	11	11.6	48	79
77	O	Gas Service	36	1.72	4.8	2.75Au	11	8	13.1	63	35
9	O	Hartford Gas	49	2.00	4.1	2.90Ma	8	—	17.0	69	51
3	O	Haverhill Gas	28	1.60	5.7	2.00Je	D6	12	14.0	80	53
21	O	Indiana Gas & Water ...	23	1.00b	4.3	1.63Jy	11	5	14.1	61	46
58	S	Laclede Gas	24	1.05	4.4	1.63Je	45	8	14.7	64	38
7	O	Mich. Gas Utils.	15	.60	4.0	1.10Je	33	5	13.6	55	37
53	O	Minneapolis Gas	33	1.55	4.7	2.28Je	10	—	14.5	68	43
18	O	Miss. Valley Gas	25	1.20	4.8	1.93Ma	D14	—	12.9	62	37
6	O	Mobile Gas Service	26	1.10	4.2	1.46Je	19	4	17.8	75	38
8	O	New Haven Gas	39	2.00	5.1	3.24De	5	5	12.0	62	68
16	O	New Jersey Nat. Gas ..	27	.90	3.3	*1.60Je	*12	*12	*17.0	56	36
105	O	Northern Illinois Gas ..	42	1.20	2.9	2.13Jy	22	14	19.8	56	42
10	O	North Penn Gas	12	.65	5.4	1.15Ma	31	10	10.4	57	60
20	O	Northwest Nat. Gas	22	.84	3.8	*1.60Je	*30	*11	*13.8	53	36
307	S	Pacific Lighting	53	2.40	4.5	3.16Je	22	2	16.8	76	41
12	O	Piedmont Nat. Gas	15	.50	3.3	.88Ma	10	—	17.0	57	27
2	O	Portland Gas Lt.	16	.75m	4.7	1.93De	D12	13	8.3	39	27
11	A	Providence Gas	11	.56	5.1	.65De	8	5	16.9	86	48
4	A	Rio Grande Valley Gas .	4	.16	4.0	.30Je	D8	7	13.3	53	46
5	O	So. Atlantic Gas	14	.80	5.7	.87De	D28	—	16.1	92	30
16	S	So. Jersey Gas	28	1.00	3.6	1.42Je	12	13	19.7	70	51
36	S	United Gas Improvement	51	2.40	4.7	3.41Je	—	10	15.0	70	49
63	S	Wash. Gas Light	51	2.40	4.7	4.18Je	13	3	12.2	67	39
18	O	Wash. Nat. Gas	27	1.00	3.7	1.62Je	33	20	16.7	62	38
11	O	Western Ky. Gas	21	.80	3.8	1.95Je	42	15	10.8	36	36
		Averages			4.5%		13%	6%	14.9	65%	

FINANCIAL DATA ON TELEPHONE, WATER, AND TRANSIT STOCKS

Annual Rev. (Mill.)			9/14/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earn. Ratio	Div. Pay-out	Approx. Common Stock Equity
		Communications									
$6,771	S	American T.&T. (Cons.)	95	$3.30	3.5%	†$5.36My	8%	4%	†17.7	62%	64
377	A	Bell Tel. of Canada	49	2.20	4.5	2.39De	12	—	20.5	92	62
51	O	Cin. & Sub. Bell Tel. ...	95	4.50	4.7	5.57De	8	2	17.1	81	77
288	A	Mountain Sts. T.&T. ...	26	.90	3.5	1.29My	15	7	20.2	70	59
380	A	New Eng. T.&T.	38	1.72	4.5	2.28Je	5	7	16.7	75	59
1,040	S	Pacific T.&T.	29	1.14	3.9	1.39My	7	6	20.9	82	57
128	O	So. New Eng. Tel.	46	2.20	4.8	2.51De	D3	5	18.3	88	65
		Averages			4.2%		7%	4%	18.8	78%	
		Independents									
7	O	Anglo-Canadian Tel.	38	$1.20	3.2%	$3.47Je	10%	21%	11.0	35%	44
45	O	British Col. Tel.	47	2.20	4.7	3.08Je	46	—	15.3	71	28
4	O	Calif. Inter. Tel.	14	.70	5.0	.49Je	D50	NC	28.6	143	24

Annual Rev. (Mill.)		(Continued)	9/14/60 Price About	Dividend Rate	Approx. Yield	Recent Share Earns.	Per Cent Increase In Share Earn. Recent	5-yr. Aver.	Price-Earn. Ratio	Div. Payout	Approx. Common Stock Equity
25	O	Calif. Water & Tel.	30	1.36	4.5	1.84Je	D1	5	16.3	74	36
22	O	Central Tel.	23	.88b	3.8	1.60Je	6	—	14.4	55	33
5	O	Commonwealth Tel.	22	.90	4.1	1.47De	9	8	15.0	61	35
5	O	Florida Tel.	26	1.00	3.8	1.32De	32	4	19.7	76	40
1,081	S	General Tel. & Elec. ...	29	.76	2.6	†1.10Je	—	10	†26.4	69	43
23	O	Hawaiian Telephone	22	1.00	4.5	†1.37Jy	8	4	†16.0	73	45
8	O	Inter-Mountain Tel.	16	.80	5.0	.77De	D15	—	20.8	104	53
9	A	Puerto Rico Telephone .	54	1.80	3.3	1.93De	D1	—	28.0	93	42
26	S	Rochester Tel.	24	1.00	4.2	1.48Je	D7	5	16.2	67	36
12	O	Southwestern St. Tel. ..	26	1.20	4.6	1.60Je	2	3	16.3	75	42
13	O	Tel. Service of Ohio ...	29	.35q	1.2	1.31Je	40	8	22.1	27	32
42	O	United Utilities	46	1.45	3.2	1.95De	19	14	23.6	74	39
19	O	West Coast Tel.	27	1.20	4.4	1.90Je	21	5	14.2	63	37
276	S	Western Union	45	1.40	3.1	2.59De	31	15	17.4	54	87
		Averages			3.8%		8%	7%	18.9	68%	
		Water Companies									
		Holding Companies									
48	S	American Water Works .	22	$ .80	3.6%	$1.24Je	5%	7%	17.7	65%	19
		Operating Companies									
5	O	Bridgeport Hydraulic ...	37	$1.70	4.6%	$1.86De	6%	5%	19.9	91%	53
17	O	Calif. Water Service ...	27	1.20	4.4	1.58Jy	D9	6	17.1	76	37
5	O	Elizabethtown Water ...	26	1.20	4.6	2.20De	17	—	11.8	55	60
12	S	Hackensack Water	53	2.40	4.5	*4.36De	*32	* 6	*12.2	55	35
10	O	Indianapolis Water	26	1.20s	4.6	1.70Je	20	5	15.3	70	34
6	O	Jamaica Water	43	2.20	5.1	3.12Je	D4	17	13.8	71	28
5	O	New Haven Water	67	3.40	5.1	2.91De	D12	—	23.0	117	55
2	O	Ohio Water Service	27	1.50b	5.6	1.61Je	D9	—	16.8	93	33
11	O	Phila. & Sub. Water	58	1.80s	3.1	3.31Je	20	5	17.5	54	29
3	O	Plainfield Un. Water ...	20	1.10	5.5	2.31De	44	12	8.7	43	66
5	O	San Jose Water	39	1.30	3.3	2.25Jy	D3	10	17.3	58	41
11	O	Scranton-Springbrook ...	26	1.20	4.6	1.79Je	9	6	14.5	67	29
7	O	South. Calif. Water	22	1.00	4.5	1.38Je	15	8	15.9	72	36
4	O	Southern Gas & Water .	22	.80d	3.6	1.72My	24	5	12.8	47	19
		Averages			4.5%		12%	6%	15.5	69%	
		Transit Companies									
21	O	Baltimore Transit	7½	—	—	$1.02De	72%	11%	7.4	—	45
12	O	Cincinnati Transit	7½	$ .30	4.0%	.91De	193	—	8.2	33%	56
66	S	Fifth Ave. Lines	17	1.00t	5.9	.23De	—	—	—	—	65
322	S	Greyhound Corp.	24	1.00a	4.2	1.81De	D5	7	13.3	55	62
26	S	Nat. City Lines	26	2.00	7.7	2.22De	33	—	11.7	90	92
13	O	Niagara Frontier Trans.	13	.60	4.6	.76De	—	—	17.1	19	67
20	A	Pittsburgh Rys.	11	.25	2.3	—	—	—	—	—	90
6	O	Rochester Transit	7	.40	5.7	1.08De	26	—	6.5	37	100
21	O	St. Louis P. S.	10	.80	8.0	.77De	13	—	13.0	104	93
13	S	Twin City R. T.	11	1.00	9.1	.59De	146	—	18.6	170	65
20	O	United Transit	6	.70	11.7	.89De	18	2	6.7	79	54
		Averages			6.3%		52%	2%	11.4	81%	

A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. *Deferred taxes resulting from liberalized depreciation are not normalized. If normalized, the price-earnings ratio would be higher, and the rate of increase in share earnings would be smaller. †On average shares. D—Decrease. a—Also 10 per cent stock dividend October 24, 1960. b—Also 30 per cent stock dividend December, 1959, 2 per cent stock dividend September 30, 1960. d—Also 1 per cent stock dividend quarterly. e—Also 3 per cent stock dividend January 7, 1960. m—Also 10 per cent stock dividend January 15, 1960. q—Also 3 per cent stock dividend December 31, 1959. r—Also 40 per cent dividend June 13, 1960. s—Also 10 per cent stock dividend March 31, 1960. t—Paid to date. NC—Not comparable.

What Others Think

The Phillips Decision—Six Years Later

SOMETIME ago, William E. Torkelson, chief counsel of the public service commission of Wisconsin, made some observations regarding the Phillips case. He spoke before the Governors' Conference on Natural Gas, which met in Los Angeles, California.

Mr. Torkelson stated that the public service commission of Wisconsin became involved in the Phillips case early in 1950 when a protest was filed with the Federal Power Commission against the result of contract changes which had been renegotiated between Phillips Petroleum and the Michigan Wisconsin Pipe Line Company. Due to Michigan Wisconsin's inability to meet certain construction deadlines, Phillips was able to boost its contract price 70 per cent—from 5 cents to 8.5 cents per Mcf. Also a spiral escalation clause was incorporated in Phillips contract. Mr. Torkelson states:

> These events demonstrated that the ultimate consumer at the far end of the pipeline could have no effective regulatory protection unless the rates at which the gas suppliers sold their gas to the pipeline were regulated by an appropriate regulatory agency. The Supreme Court had only stated the obvious in the Interstate case (Interstate Nat. Gas Co. *v.* Federal Power Commission, 331 US 682, 693) when, in referring to the sale of gas in the field to an interstate pipeline, it said: "Unreasonable charges exacted at this stage of the interstate movement become perpetuated in large part in fixed items of costs which must be covered by rates charged subsequent purchasers of the gas, including the ultimate consumer." Effective regulation requires that there be no gap in the regulatory scheme at either the production or the consumer end of the pipeline.

IN 1954 the U. S. Supreme Court (Phillips Petroleum Co. *v.* Wisconsin, 347 US 672, 3 PUR3d 129) confirmed the opinion that any person—and this included producers—making sales of natural gas in interstate commerce for resale was a "natural gas company." This, of course, established that the FPC had jurisdiction in the matter and the case was remanded to that body to fix the rates which Phillips might charge.

It is stated by Mr. Torkelson that the FPC has made it no secret that the Phillips case has given the commission a job which is not reasonably possible to perform and which is increased in difficulty by too many interverners. Mr. Torkelson

believes that a good many of the commission's problems are of its own making and that some of the delay has been because of the hope that Congress would intervene with amendments to the Natural Gas Act.

It is stated by Mr. Torkelson that at no time since 1954 has the FPC shown any "firm" inclination to adopt and apply basic regulatory principles in the regulation of producers. It is Mr. Torkelson's belief that there is no reason why these principles could not be applied and he stated that the only objector is the industry which fears that it would not receive high enough rates if such principles were applied.

MR. TORKELSON also charged that the commission has refused to use the principles laid down in various court decisions and has also failed to apply its own past precedents.

It is Mr. Torkelson's belief that the result of these policies has been: (1) an increase in the number of rate filings which might not have been received had the FPC made it clear that it would follow basic regulatory policies; and (2) an increase in the complexity and the length of such cases. As an illustration of this position he stated:

> The point we desire to make can be illustrated by an example. In Wisconsin it has been made clear that the "present fair value" doctrine is not acceptable and that the rate base would comprise the actual depreciated investment. As a result, no one files a rate application based on a "present fair value" rate base and when a rate case is presented, the rate base figure submitted is, with rare exceptions, one based on actual depreciated investment and hence is uncontested. As a result, many potential rate cases are not started, and when a rate case is presented its length and complexity are reduced by lack of controversy over the rate base issue.

Mr. Torkelson charged that even when the commission had taken an initially firm stand in the interest of the consuming public it had invited trouble and additional rate proceedings by backing down from its previous position. In defense of his position Mr. Torkelson cited a number of cases before the FPC.

THIS attitude, Mr. Torkelson believes, places the industry in the position of making rate filings that cannot be justified on the basis of cost in the hope that the FPC will approve them despite what the courts have said. Thus, he stated, filings are on a speculative basis. Such filings add to the volume that the commission must process and this could have been prevented, in his opinion, had the FPC indicated that filings that did not meet its standards would stand no chance.

Regarding the matter of interveners, Mr. Torkelson suggests that they should be welcomed, assuming that they make their presentations in a constructive manner. He also suggested that in many cases intervention is prompted by lack of confidence in the commission. He stated that if the FPC would "hew to the line," there would be many cases where intervention could be dispensed with. However, he pointed out that as things now stand those who are interested in natural gas matters find it necessary to intervene to protect themselves and to join in an effort to urge the continuation of principles they believe correct.

Another invitation to litigation, Mr. Torkelson believes, has been the failure of the FPC to exercise its rate condition-

ing powers in certificate cases. This failure, he stated, coupled with the failure to hold down increases resulting from favored-nation and other types of escalation clauses, places just about every existing gas purchase contract in jeopardy.

MR. TORKELSON concedes that the difficulties thrust upon the commission by the Phillips decision are troublesome. However, he maintains that a good many of these difficulties are the result of a refusal to "firmly adopt and firmly follow" basic regulatory principles in accordance with applicable statutes and court decisions. In conclusion he stated:

> . . . Its failure to do so has caused uncertainty and confusion, which in turn we think has resulted in the commencement of numerous cases that would not otherwise have been filed, and has also unduly prolonged such cases as have been filed. It has also resulted in increasing the number of interveners who participate in cases before the Federal Power Commission.

In light of President Eisenhower's formation of a group consisting of the "big six" regulatory agencies, Mr. Torkelson's remarks take on added significance. This group, headed by Judge E. Barrett Prettyman, will attempt to work out some recommendations to end the backlog of work that plagues most of the regulatory agencies.

When Are Normal Billing Cycle Degree-days Not Normal?

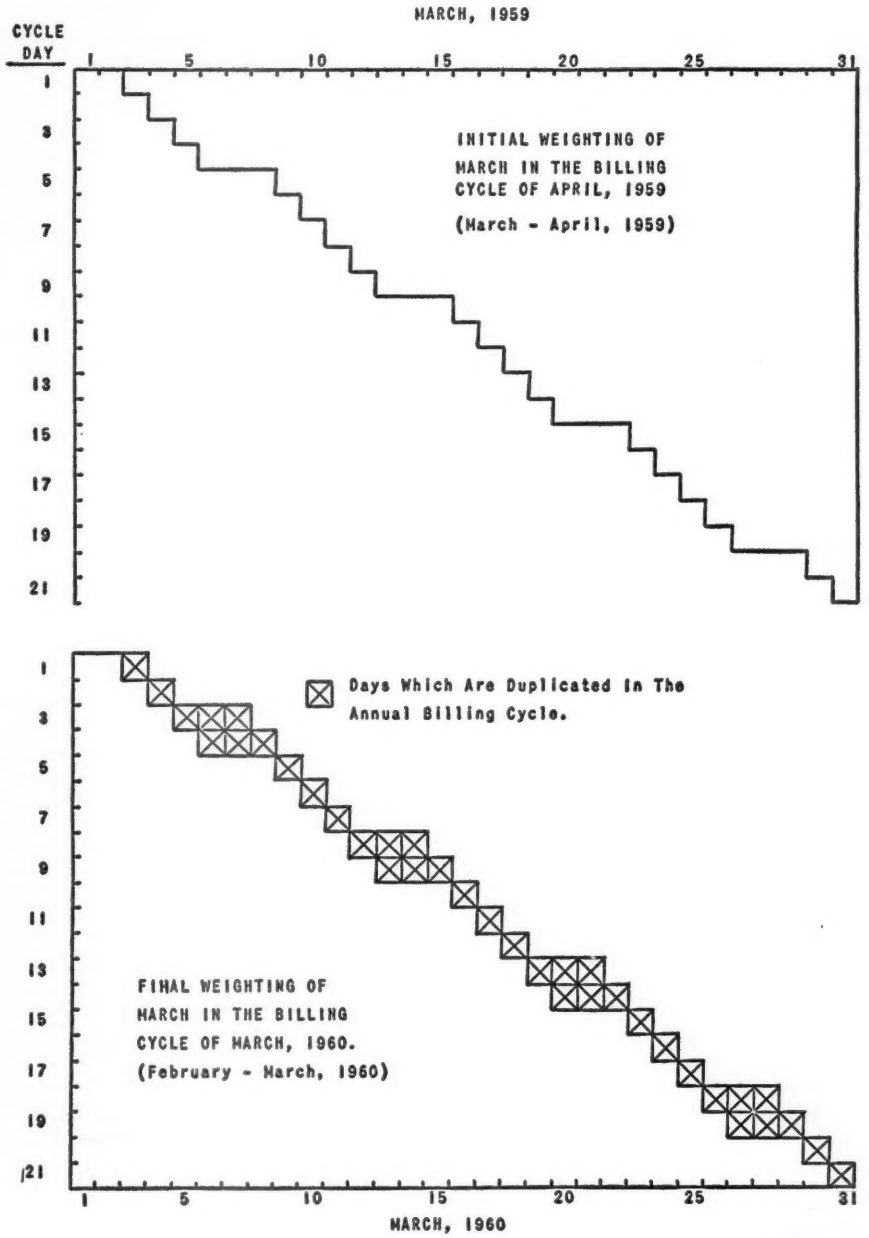
NORMAL degree-day deficiencies for urban areas in the United States are available from the United States Weather Bureau, and are used by many companies for forecasts of revenue and expenses. These data are supplied by days and can readily be put on a billing cycle basis rather than a calendar month basis. In cycle form they are directly comparable to revenue, which is billed, recorded, and collected on a billing cycle basis. But given annual normal degree-days of, say, 4,740 for an area served by the hypothetical K. A. P. Gas Company, annual billing cycle normals will not always total 4,740. Why? Is a billing cycle normal actually necessary?

As the annual heating load increases in its importance to gas distribution companies throughout the country, the use of some concept of normal annual degree-days becomes essential. Rate cases, for example, reflect this need. Since revenues are billed and recorded on a cycle basis, the effect of weather on revenue naturally is reflected on a cycle basis. It is not possible to use monthly *calendar* degree-days to explain billing cycle revenue variations resulting from temperature fluctuations.

However, the annual normal degree-days for a calendar year are seldom equal to the annual normal degree-days for a billing cycle year, although identical *daily* normal degree-days are used. While this lack of agreement may occasionally be disconcerting, it is completely reasonable. The difference can be specifically reconciled.

THE basic calculation of average billing cycle degree-days for any billing month, whether using normal or actual degree-days, involves the summation of

CALENDAR DAYS FOR THE MONTH OF MARCH DUPLICATED IN THE CALCULATION OF ANNUAL NORMAL CYCLE BILLING DEGREE DAYS



degree-days applicable to *each* of the consecutive cycle billing periods and division of this sum by the number of billing periods in the month. (Billing periods commonly total 21 per month.)

LET us consider the calculation of annual normal degree-days. In the calculations for a 12-month period, each daily normal degree-day deficiency will receive a weight of one, since it occurs in 21 sums and is then divided by 21, the overlapping zero degree-day deficiencies in July-August engendering a zero effect. It must be borne in mind that a *billing cycle year* involves roughly 395 calendar days, with the weighting equal to approximately 365 calendar days. Billing cycle degree-days for any year are to be taken as the sum of billing cycle degree-days for twelve consecuvtive months. What occurs in the beginning and ending months?

The weighting of the final month of a specific 12-month period occurs at the beginning *and* at the end of a 12-month series. This weighting causes annual normal billing cycle degree-day totals to differ from annual normal calendar year totals. The shifting of Saturdays, Sundays, and holidays determines the weight assigned to each specific calendar day.

THIS can be illustrated for the K. A. P. Gas Company. Let us assume that annual normal degree-days total 4,740 (Weather Bureau). We wish to calcu-

TABLE A

NORMAL BILLING CYCLE DEGREE-DAYS—SPECIAL STUDY, YEAR ENDED MARCH, 1960

Cycle Day	*Calendar Days Duplicated in Cycle Billing Year*	*Degree-days Duplicated in Cycle Billing Year*	*Total Degree-Days*
1	Mar. 3	25	25
2	" 4	25	25
3	" 5–6–7	24–24–24	72
4	" 6–7–8	24–24–23	71
5	" 9	23	23
6	" 10	23	23
7	" 11	23	23
8	" 12–13–14	22–22–22	66
9	" 13–14–15	22–22–21	65
10	" 16	21	21
11	" 17	21	21
12	" 18	20	20
13	" 19–20–21	20–19–19	58
14	" 20–21–22	19–19–18	56
15	" 23	18	18
16	" 24	18	18
17	" 25	17	17
18	" 26–27–28	17–17–16	50
19	" 27–28–29	17–16–16	49
20	" 30	15	15
21	" 31	15	15
Total			751
Average (751 ÷ 21)			36
	Normal Annual Total	4,740	Degree-days
	Gain Shown Above	36	
	Normal, Year Ended March, 1960	4,776	

(Note: Meters read a specific day, as March 4th, are assumed to be read at 7 A.M., thus including degree-days through the preceding day, as March 3rd.)

late normal billing cycle degree-days for the year ended March, 1960. The specific days covered by each billing cycle each month are based on the schedule of meter reading dates. Why will these *not* be equal to the annual normal degree-days which are the sum of daily normal degree-days?

This can be most easily demonstrated through use of a chart. The chart on page 579 reflects the calendar days in the March period included in a billing cycle year ended March, 1960. Note that the calculation of billing cycle degree-days for the month of *April, 1959,* provides the *initial* weighting of normal degree-days in March. Calculation of normal billing cycle degree-days for the month of *March, 1960,* provides the *final* weighting for the month of March. Indicated by small crosses on the chart are those days which occurred *more* than 21 times in the billing cycle year; that is, days which were duplicated in the calculations for March in this 12-month period. This duplication is common in utilities. It results from the fact that meter reading schedules for the same month in succeeding years cannot be identical. Shifting of Saturdays, Sundays, and holidays affects the reading schedule each year.

THE sum of the degree-days for these particular days is shown in Table A, page 580. This sum, divided by 21 cycle days, indicates an average gain for March of 36 degree-days. This gain, added to the calendar normal of 4,740, indicates a billing cycle normal of 4,776 for the year ended March, 1960. This is the normal which will be comparable to the calculated *actual billing* cycle degree-days for the year ended March, 1960. Each will reflect the same period covered by (billing cycle) revenue.

We can conclude that billing cycle normal annual degree-days should not be expected always to equal the calendar year normal; however, they remain the only measure of temperature variation directly comparable to utility revenue as it is billed by cycles each month. Also, the technique outlined above is applicable to any 12-month period, including a period ending some time in the future. All that is needed is a schedule of meter reading dates.

—D. E. PAUL,
Statistician, Laclede Gas Company,
St. Louis, Missouri.

"POLITICS is the most important function of any business operation today. If it is unclean, it is because you have let it become so through lack of interest. There is no individual in the United States today too big or too important to hold himself above politics if he values our American traditions. And remember politics begins at home. If it is unsound at home, it will be unsound nationally.

"If you are going to participate in politics you must start at the local precinct level and work up. You cannot start at the national level and work down. You cannot stand aside and let a few party hacks select your candidates for office. Regardless of your party you must know your candidates, know what they stand for, and then support those who are sound and believe in the principles of our form of government."

—JOHN P. SAYLOR,
U. S. Representative from Pennsylvania.

The March of Events

Agreement on Columbian Basin

THE Columbia Interstate Compact Commission has agreed on a compact covering the use of the Columbia river basin water resources. Two previous agreements, one in 1954 and another in 1956, failed to get the needed state approval.

John Sweat, executive director of the commission, expressed optimism concerning ratification at this time. The compact would create a 16-member commission which would review proposals for dams and other projects on the Columbia and its tributaries, make recommendations to Congress as to whether they should be built. A vote of twelve members would be needed to make such a recommendation. Members would be appointees of the various state governors and would serve without pay.

Up to now Oregon has been the bottleneck to an agreement because it objected to an article in the compact that assured upstream states of getting most of the power generated at dams within their borders.

This issue was resolved when the article was made less specific, but to the same general effect. Also settled was the use of water for irrigation in upstream states *versus* its use for power production in downstream states. The full commission was scheduled to meet in Spokane, Washington, on October 3rd to sign the compact. After which the legislatures of the various major states—Washington, Oregon, Idaho, and Montana—will have to vote approval.

CAB Checks Air-line Clubs

THE Civil Aeronautics Board is checking into private clubs set up by five major airlines to determine whether club members receive preferential treatment. CAB regulations forbid favortism by airlines in the sale or allocation of tickets.

The board has asked for information on clubs from all airlines. Only Pan American, Trans World, and American operate clubs with lounges at major airports. United and Capital have clubs, but no lounges.

Spokesmen for the air-line industry denied that club members get preferential treatment. They pointed out that airlines are now operating most of the time at only 60 per cent of their seating capacity, so it is seldom difficult to get reservations. No charges have yet been filed against the airlines as a result of the CAB investigation.

California

Gas Exploration Subsidiary Formed

A NEW subsidiary has been formed by Pacific Lighting Corporation to develop natural gas reserves, chiefly in the mid-continent and the Rocky Mountains. The objective is to supplement long-term future supplies for southern California where the company's three public utility subsidiaries operate. The name of the new gas company is Pacific Natural Gas Exploration Company. It will explore jointly for gas reserves with a subsidiary of Southern Union Gas Company of Dallas, Texas. Robert W. Miller, chairman of the board of Pacific Lighting, said the project is to be limited in scope and experimental in nature. It is believed that only a small part of Pacific Lighting's distant requirements for gas will be furnished by the new venture.

The new corporation will be owned entirely by Pacific Lighting. Southern Union Production Company will supply the bulk of man power and technical services, Miller related, but Pacific Lighting will own approximately half of all gas developed and about one-fourth of all oil developed. It will also enjoy the right to buy any part of Southern Union Production's half of the gas production which will not be required by that company's parent, Southern Union Gas Company.

District of Columbia

New Utility Law Course

THE Georgetown University Law Center, Washington, D. C., recently announced, through its bulletin for 1960-61, that a new course on public utility regulation will be given to morning and evening classes of senior law graduates during the semester starting September 22, 1960. It will be taught by Francis X. Welch, who is also editor of PUBLIC UTILITIES FORTNIGHTLY, and has long been active in this special field of law. Since 1957 he has also been Secretary of the Section of Public Utility Law of the American Bar Association as well as the author of *"Cases on Public Utility Regulation"* (third edition), *"Preparing the Utility Rate Case"* (1954), and *"Conduct of the Utility Rate Case"* (1955).

Kentucky

General Telephone Raises Rates

GENERAL TELEPHONE COMPANY OF KENTUCKY has been granted higher telephone rates in Kentucky.

General asked the public service commission last March for higher rates amounting to $1,989,942 annually or an increase amounting to an average of $1.80 a month for the company's 127,000 telephones in 29 central, southern, and eastern Kentucky counties.

The commission suspended the proposed rate increase for five months, but under its rules the company had the right to put the higher rates into effect after that with the provision it will refund any collections above the rates finally approved by the commission. The commission specified that General Telephone set up machinery for making refunds in the event the rate increase is finally denied.

Missouri

FPC Gas Allocation Contested

THE recommendation of an FPC hearexaminer directing Mississippi River Fuel Corporation to allocate all its available natural gas supply to its utility customers will be contested by the company.

Laclede Gas Company, the largest of the pipeline's utility cutomers, was the company which initially asked for an increased share of the pipeline's gas. Laclede Gas has stated it did not intend to encroach on the gas supply of Mississippi's industrial customers.

And Illinois Power Company, another utility which would receive additional supplies under the FPC recommendation, said it did not want its Illinois customers to which it sells power to have their operations adversely affected by a shortage of gas.

In the view of the Mississippi Company, the FPC examiner's opinion goes beyond what was asked for by these two companies. In Laclede's case, the utility allegedly did not ask for a specific additional amount of gas. It only asked for what was available.

Ohio

Columbus Wants Utility Accounts Inspection

THE city of Columbus, spurred by its utilities director, is urging city council to require utility companies serving the public to open their books for inspection. A plan is sought whereby utilities, over which the city has original rate jurisdiction, would pay for the inspection of their operations.

Under a franchise held by Columbus Transit Company, it pays $20,000 a year to the city to help pay the cost of the city's audit of its book and for checking the company's operations. Columbus' utilities director would like to have the local gas and electric companies make similar contributions. He said he did not mean to imply that anything was wrong, but that the city should have the right to inspect the records and operations of all public utilities which furnish service to Columbus in order to properly protect residents.

Oregon

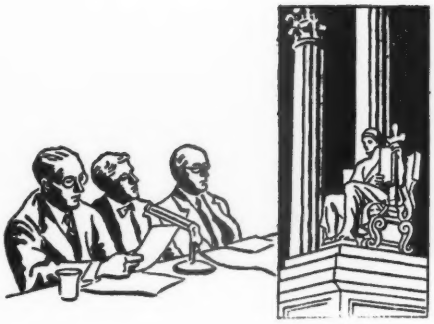
Mistake Costs Voters $4 Million

THE citizens of Tillamook county, Oregon, at a special election on September 16th, authorized by a vote of 2,678 to 1,737 a bond issue to finance acquisition of Pacific Power & Light Company lines in the area at a base price of $3,915,000 and to consolidate its competing facilities.

Pacific Power had been urging for several years that the public make some decision as to how the Tillamook area line duplication problem should be resolved. The present PUD management had admitted it made a mistake in building parallel lines instead of trying to condemn Tillamook facilities of the then Mountain States Power Company which merged with PP&L in 1954.

The Tillamook PUD had its first bond issue of $750,000 approved in 1940 and at the end of 1959 had a debt of $2,173,000.

Business in the area served by Pacific Power represents only about 1½ per cent of PP&L's total electric revenues.



Progress of Regulation

Trends and Topics

Offsets to Attrition and Regulatory Lag

ATTRITION, regulatory lag, erosion of earnings, and inflation are constantly recurring expressions in rate cases. Attempts have been made to offset their effects by adjustments in the return allowance and in the rate base. The return question is discussed in PUBLIC UTILITIES FORTNIGHTLY, April 24, 1958, at page 633, under the heading "Return Allowance Reflecting Attrition Factor"; and in the FORTNIGHTLY, July 30, 1959, at page 241, the subject is "Use of a Year-end Rate Base to Offset Effects of Inflation." The Virginia commission decision mentioned in those discussions (21 PUR3d 239) was upheld on appeal. Use of a year-end rate base, according to the court, does not necessarily absorb the loss from attrition (28 PUR3d 368). The rate of return had been increased by .23 per cent, from a fair rate of 6.15 per cent to 6.38 per cent.

Several commissions and courts have more recently ruled on the questions presented. Most of them agree with the Illinois commission, which in the Iowa-Illinois Gas & Electric Company case (26 PUR3d 369) said that it had "considered current economic conditions." The Arkansas commission took into consideration the fact that the rate of return, "like the tide, ebbs and flows" (34 PUR3d 176). They do not, however, all agree as to whether a specific adjustment should be made in the rate base or the rate of return.

Denial of Adjustment

In the FORTNIGHTLY article on attrition as a return factor mention is made of California decisions (21 PUR3d 1; 21 PUR3d 15; 21 PUR3d 48) in favor of an allowance for attrition; but in two later cases such an allowance was denied. The commission, in authorizing the Pacific Lighting Gas Supply Company to raise rates, refused to add 0.5 per cent in the rate of return to offset regulatory lag. It had allowed for the latest known ad valorem tax rate and gas purchase cost (26 PUR3d 260). Likewise, it made no extra

return allowance for attrition in fixing telephone rates when it had given full effect to rising costs (28 PUR3d 10).

The Louisiana commission rejected a claim by the United Gas Pipe Line Company for an attrition allowance because, in its opinion, no justification exists for providing stockholders with anything in addition to a fair return. The risk of inflation was said to be taken into account by investors in appraising the worth of utility stocks for investment purposes (34 PUR3d 78).

The Maine commission denied a telephone company's request to make provision for attrition in fixing the return allowance, concluding that allowance of an amount for attrition would be rate making based on speculation and conjecture and, in addition, that the company had used an erroneous arithmetical method in applying its figures to the forecast of attrition due to investment increase, which had resulted in exaggerating conditions (23 PUR3d 510). The commission in another case refused to use a year-end rate base to offset attrition but said it would consider these factors in the return allowance (29 PUR3d 113).

No allowance for attrition was made in a case before the New Hampshire commission decided in 1959. Revenues had not been normalized for a recession during the test year, and allowance of temporary rates was expected to offset recent attrition (27 PUR3d 113). The decision was upheld on appeal (30 PUR3d 61).

The Pennsylvania commission rejected claims for attrition of earnings where a company stated that its composite cost of capital of 6.19 per cent failed to provide for attrition. After referring to the fact that it had consistently rejected, and had been sustained by the courts, claims for attrition resulting from regulatory lag, the commission said that the informed investor's knowledge of regulatory lag as well as normal risks of financing were reflected in market prices (33 PUR3d 177).

The Utah commission refused to make a specific allowance for attrition in the rate base of the Mountain Fuel Supply Company where expenses for the test period had been adjusted for every known increase, an increase in sales was indicated, the amount of investment to produce a unit of revenue had been declining, and the company included spare capacity at time of installation (32 PUR3d 321).

The Washington commission did not consider an allowance for attrition necessary in fixing the rate of return where due consideration had been given to all essential factors affecting return (27 PUR3d 238). In another case it rejected a year-end rate base since the company's load growth had more than offset inflation and attrition (33 PUR3d 113).

Approval of Adjustment

Attrition is the result of two factors: (1) The fact that construction costs are constantly increasing, and (2) the fact that the bases for calculating the rate of return are made in the year prior to that for which the return is calculated. The impact of inflation also results in the problem of regulatory lag. The New Jersey supreme court discussed these factors in reviewing a

commission order, and it referred to *"Rate of Return,"* by Ellsworth Nichols, for further discussion of the subject. The court quoted from decisions in which additions were made to the rate base and decisions in which the otherwise allowable rate of return was increased to offset these economic factors. It concluded, however, that the commission's addition to the rate base was not supported by evidence correlating the amount added and the problem of inflation and attrition. The case was remanded for further findings (29 PUR3d 87). The commission then made further findings in support of an addition to the rate base for the effects of inflation (31 PUR3d 453).

The Maryland court of appeals, in upholding a commission order increasing rates of the Baltimore Gas & Electric Company, referred to the discussion of this question in *"Rate of Return,"* by Ellsworth Nichols, and said that the commission was well aware of the problems and could have attempted to meet them in several ways. It could increase the otherwise allowable rate of return, determine fair value more nearly equivalent to reproduction cost depreciated, or increase historical cost. It had chosen to use as a test year the year in which the hearing was held (29 PUR3d 332, 337).

The West Virginia commission, in fixing rates for Hope Natural Gas Company, found that an allowance for attrition should be made by adding an amount to net investment (33 PUR3d 335). Recently, in fixing gas rates for Manufacturers Light & Heat Company, it said that the defect in using an original cost rate base, which disregards inflation, could be remedied by an appropriate adjustment for attrition and taking attrition into account in prescribing the rate of return. It added to a cost rate base a sum equal to the excess of current investment per new customer over the prior investment per customer (34 PUR3d 132).

Adoption of a year-end rate base as compensation for the adverse effect of attrition, said the District of Columbia commission, in fixing future rates, does not depart from the principle of using average investment to determine the reasonableness of past rates (28 PUR3d 206).

The Colorado commission took into consideration capital costs as they existed at the end of the test year and added to the rate of return an attrition and erosion increment of two-tenths of one per cent (34 PUR3d 186). The New York commission made an attrition allowance of one-half of one per cent in the return of the Rochester Telephone Corporation, which was engaged in a substantial construction program (24 PUR3d 262).

In fixing a rate of return for a telephone company, the Wisconsin commission allowed for an estimated decrease in rate of return of about 0.19 per cent by reason of attrition during the latter half of the current year (23 PUR3d 388). The Wyoming commission recognized the need for allowing more than bare cost of capital to compensate for the declining tendency of the return allowance (27 PUR3d 259).

The Indiana commission said that inflation cannot be ignored, but that it preferred to take cognizance of it by permitting a total dollar return that will take account of the situation in which inflation has placed the company. It proposed to determine earnings necessary to provide for servicing funded

debt, sufficient to render a return on common stock equity, and attract equity capital (23 PUR3d 26).

Review of Current Cases

Reasonable Return to Pipeline Takes into Account Tax Savings in Gas Production Operations

THERE is no statutory authority for the Federal Power Commission to treat actual savings in taxes, to which natural gas companies are entitled, any differently than savings in any other cost of service, the federal appeals court for the fifth circuit held in reviewing an order (30 PUR3d 308) involving rates of El Paso Natural Gas Company for the period from April 15, 1955, to the end of 1957.

The commission had allowed the company to retain nearly $8 million of tax savings from depletion and intangible drilling expense, representing 8.61 per cent of the well-mouth investment, as compared with the stipulated 6 per cent return allowed on its transmission investment. The court remanded the case for further hearing and the fixing of a rate "that represents the cost of service and a reasonable return on the investment, including compensation for consumption of the gas and an increment for incentive, instead of merely treating the tax savings as the amount necessary to provide for return and incentive."

Taxes and Cost of Service

El Paso claimed that it was entitled to 6 per cent on the well-mouth investment, plus the nearly $8 million in tax savings. It contended that it should not have to account for these tax savings in computing cost of service. The commission, on the other hand, asserted that the company was entitled only to the tax savings, representing 8.61 per cent on the well-mouth investment, without any further return allowance on the investment. The state of California and other interveners contended that only 6 per cent should be allowed on the entire investment, including well-mouth properties. They pointed to a stipulation by all parties to the proceeding before the commission that El Paso should be allowed a 6 per cent return on the entire rate base.

So far as concerns the element of cost of service which is represented by the price of gas delivered to El Paso's transmission lines after production is completed, said the court, the well-mouth investment of the company may be viewed as if it were the property of an independent regulated producer. The producer is entitled to a rate which will permit him to recover his costs and a reasonable return on his investment, and this return must include an increment for incentive for exploration and development and compensation for the wasting asset. The court thought the stipulation for an overall rate of 6 per cent did not foreclose El Paso's right to urge a higher rate on the well-mouth investment, for all parties were on notice that the company was proceeding on the theory that it was entitled to retain the tax savings in addition to the 6 per cent return.

While the full effect of the tax savings must be made available to the company, this does not mean that these tax benefits are to be translated into addi-

tional profits over and above a reasonable return on the investment. They are merely to help the regulated company, in competition with competing fuels and in the money market, to earn a fair return, including the incentive increment for exploration and development and payment for gas consumed.

A reasonable rate under the Natural Gas Act includes a compensatory increment for depletion and an increment to attract capital—the incentive item. The statutory requirement of reasonable rates is not modified by reading into it an exception that prices charged may be sufficient to afford a reasonable rate plus an amount representing savings in taxes granted to the gas industry.

Except for accelerated depreciation under § 167 of the Internal Revenue Code of 1954, 26 USCA § 167, the court held that whatever federal income taxes were actually paid for the test year should be treated as part of the cost of service, regardless of whether these taxes were less than would have been paid but for the depletion allowance and the deduction for intangible drilling expense.

Accelerated Depreciation Treatment

The court sustained the commission in its treatment of tax deferrals resulting from the company's use of the declining balance method of depreciation for tax purposes and computing its taxes for rate-making purposes on the straight-line method, placing present "savings" in a special reserve to be used to equalize tax payments in later years. Such amounts, it was noted, can never become an added return to the company because of the restriction as to their use. *El Paso Nat. Gas Co. et al. v. Federal Power Commission, No. 18022 et al. August 2, 1960.*

Gas Pipeline Extensions Sustained Despite Questioned Profitableness

THE federal appeals court for the District of Columbia sustained Federal Power Commission orders (30 PUR3d 104 and 123) authorizing Northern Natural Gas Company to extend its lines to serve more than 300 communities in Nebraska, South Dakota, Iowa, Illinois, Wisconsin, and Minnesota. The commission had found the proposed service economically feasible.

Local gas distributors presently buying from Northern objected to the commission's action because, on the basis of the rates now charged Northern's customers, the new service will not yield in the first three years as high a percentage of profit as the present service. It was urged, therefore, that the new service may tend to keep up the rates which present buyers have to pay.

The court observed that the various parts of a public utility's system need not and cannot be equally profitable. It was noted that the commission did not strike an arbitrary balance in weighing conflicting interests in the case. Furthermore, service on certain lines was authorized only on condition that the distributors on such lines make contributions to initial costs.

It appeared to the court that the record supported the commission's decision. *Minneapolis Gas Co. et al. v. Federal Power Commission, 278 F2d 870.*

New Rate for Continuing Gas Producer Service Is Rate Change and Not Initial Rate

THE federal appeals court for the fifth district has sustained the Federal Power Commission in treating as a rate change, rather than as an initial rate, a contract price filed by Sun Oil Company for sales of natural gas to United Fuel Gas Company. Initial rates may be reviewed by the commission, but any reduction found necessary operates prospectively only, and not, as in the case of rate changes, as of the time an increase was put into effect.

Sun had never applied as an independent producer for a certificate authorizing the sale of natural gas and had never submitted a rate schedule. It has sold gas to United under a contract subsisting between Atlantic Refining Company (an operator of gas units) and United. In 1958 Sun entered into a contract with United at a higher price than it has previously obtained under the Atlantic contract. In all other material respects this new contract is the same as the Atlantic contract. Sun then submitted its contract with United as an initial rate filing, not subject to suspension. However, the commission treated it as a rate change under § 4(d) of the Natural Gas Act, and, after suspending it, permitted it to go into effect subject to refund.

Sun Oil then petitioned for a review.

No Change in Service

The court said it was unwilling to assume that Sun, with knowledge of the commission's orders requiring the filing of initial rates after the Phillips decision in 1954 and having complied with such orders in other situations, has willfully disregarded the provisions of the Natural Gas Act and the commission's orders. On the contrary, said the court, it would seem apparent that the sales and deliveries of Sun's gas were made under the authorization of Atlantic's certificate as well as at Atlantic's rate. Sun would not be heard to contend otherwise.

The Natural Gas Act does not contemplate that initial rate schedules should be filed in situations where sales are continued to a buyer without any changes in the terms of sale other than price. It follows, the court declared, that the contract made by Sun in its own name with United, differing in substance from Atlantic's contract only as to rate, could not be regarded as an initial rate filing. It was a rate change subject to the procedures of § 4. *Sun Oil Co. v. Federal Power Commission, No. 17432, July 22, 1960.*

"Slippage" Adjustment for Weather Normalization Accepted by New York Commission in Gas Rate Case

THE New York commission, in the recent Niagara Mohawk gas rate case, agreed with the company that the effect of abnormal weather conditions on revenues and expenses had to be recognized. However, since normalization of sales necessitated a corresponding normalization of the gas purchases required to supply such "excess weather load," a special problem was presented concerning adjustments of the purchased gas volume.

The commission had used the calendar year 1959 as the test period. While the cost of purchased gas booked in 1959 reflected actual calendar year 1959 purchases, the revenues booked in that period

reflected sales which occurred in a billing period covering, in part, the months of November and December, 1958, and omitting, in part, the corresponding months of 1959.

In making its weather adjustment, the company had held to this billing period, which was somewhat prior to the calendar year 1959, and its study of degree-days related to such prior period. In normalizing purchases, the company converted calendar year 1959 purchases, as booked, to compute gas purchase volumes consistent with the billing-period gas sales volume.

This procedure of backing purchases into phase with sales was denominated by the company as "slippage." (The commission pointed out that the problem of slippage was not purely a problem of weather normalization, but could exist in any case where the company did not accrue revenues consistent with time of delivery.)

The company witness defended management's procedure of adjusting purchases to sales instead of adjusting sales to purchases. First, sales are controlling, he said. Sales volumes are directly responsive to customer requirements and are readily available for each of the several kinds of customers. These sales volumes, of course, determine the purchase volumes.

The second reason advanced was that the adjustment of purchased volumes to sales volumes involved only a single, simple computation. On the contrary, adjustment of sales volume to purchased volumes involved many assumptions and many computations.

As an alternate approach, the company had made a second normalization study based upon adjustment of sales to purchases.

The commission pointed out that no precise determination was possible, and that the two studies established a reasonable range. It accepted the company's slippage adjustment, which had been based upon the billing period, and which had moved purchases back into phase with sales. It also considered the differential between the two studies.

Retired Oil Gas Plant

The company had retired an oil gas plant, and had elected to seek amortization of the remaining balance of the original cost of that plant, less the related tax effect, as an extraordinary property loss. The company had deducted one-tenth of the loss for such amortization.

Obviously, said the commission, if the company is to be permitted to fix rates to recover for such unamortized property loss, it should not at the same time, and in addition thereto, seek a full return on that retired plant by including it in the rate base. It also followed that the company could not at the same time claim both property loss amortization as well as expenses, annual depreciation accruals, and taxes directly related to the operation of the retired plant.

Working Capital

The company's estimated working capital requirement was premised upon the proposed rate increase becoming effective. The commission computed necessary adjustments to make the working capital consistent with any of the various bases upon which 1959 operating data were submitted.

It is fundamental, pointed out the commission, that any change or adjustment in expenses, or any adjustment to revenues which in turn affects income taxes, requires a corresponding adjustment to working capital. For example, in its working capital computations, the company gave effect to certain adjustments like the

price of purchased gas to reflect the rate effective January 1, 1960, annualization of the 1959 wage rate increase, and elimination of expenses related to the operation of the office building. The company had not, however, adjusted working capital to reflect weather normalization. The company's estimate also included an element of expense related to the retired oil gas plant, which was deducted. In the final result, working capital was modified to correspond with all adjustments to revenues, income deductions, and income taxes.

End-of-year Rate Base

The company had contended that a year-end rate base should be used to compensate in some measure for attrition and erosion. The problems of inflation and attrition, answered the commission, are more properly the concern of rate of return. Artificial and mechanical adjustments to rate base usurp the function of rate of return and can only be misleading to all concerned. The primary objective of any rate proceeding is to test the adequacy of existing rates and to determine to what extent, if at all, such rates are inadequate for the future.

The best criterion generally for such determination is to ascertain what the rates have actually earned for the company in a recent 12-month period which has been adjusted for abnormalities and known changes. It was inconsistent, if not incongruous, to ascertain earnings in such period by applying income received over a 12-month period to investment at the tail end of such period.

Accumulated Reduction in Income Taxes

The commission reiterated its previously announced policy that the effect of any § 168 tax benefits upon the utility would be considered in determining the proper rate of return for that utility. To show the effect of such tax benefits in computing the return, the adjusted rate base was shown both before and after deduction of accumulated reduction in federal income taxes due to amortization under emergency defense certificates.

With respect to § 167 tax benefits derived from liberalized and other tax depreciation, the commission pointed to its comments in the Central Hudson Gas & Electric opinion [(1959) 28 PUR3d 317].

For equitable treatment, it had said, there should be some sharing of the § 167 tax benefits between customers and the company; to the customers because it is the duty of the utility to keep its operating costs as low as is consistent with the maintenance of adequate service and to the utility or its security holders to furnish an incentive for the use of the most advantageous tax depreciation method.

The proportions of sharing should not be predominantly to the company but rather in major part to the customer, although no precise formula could be set down that would apply to each and every utility. Rate of return had to bear a proper relationship to capital structure and the costs of servicing securities in relation to market conditions, and, as always, every rate proceeding had to be decided on the merits of the particular case.

Rate of Return

The commission denied the requested increase, and authorized additional revenues which would produce a return of about 6.31 per cent on an average rate base after deducting emergency certificate amortization and adjusting working

capital for the effect of increased rates. In so deciding, the commission gave consideration to factors resolved in the company's favor—the wage rate annualization of an increase that became effective in the middle of the test year and the weather normalization differential. The end result, in the commission's opinion, provided both an element of sharing of the benefits of liberalized and other tax depreciation and a measure of defense against attrition. It was also intended to provide an element of carrying charges on the unamortized portion of conversion costs and property losses.

The record contained no evidence as to cost of money. The absence of specific opinion testimony on the subject of cost of capital and fair rate of return, held the commission, is not necessarily fatal in a rate case. The record did contain rates of interest on long-term debt for the last five years, an analysis of earned surplus including a statement of dividend payments, the financial statements, and the company's annual report for the last five years.

Purchased Gas Adjustment

The company had elected to roll into the basic service classification rates approximately half of the present purchased gas adjustment. The reason was that the rate increases made effective by the company's supplier were the subject of proceedings before the Federal Power Commission. In event that the price should be eventually reduced, the company would be faced with the problem of making refunds to customers and modifying its gas price adjustment downward. By not rolling all of the present price adjustment into the proposed basic rates, the company hoped to avoid a negative PGA upon final determination of the FPC proceedings. Since the company's proposals effected no significant revenue change, the commission approved them. *Re Niagara Mohawk Power Corp. Case No. 21133, July 21, 1960.*

Surcharged Franchise Taxes Produce Effective Rate Increase

THE Idaho commission directed a gas company to pass franchise taxes on to customers in each of the cities levying such tax by making a surcharge on each bill.

The company had previously charged such taxes to operating expenses.

Such type of hidden taxes passed on to customers as part of the cost of service tends to lull the public into a frame of mind which allows government expenditures to be increased without strong opposition, the commission pointed out. Owners of real estate know the amount of the real estate taxes, and income taxpayers are aware of the amounts they pay each year. Many people, however, are not aware of the burden passed on to them in the form of taxes levied along the line by the corporations from which they buy service and merchandise.

The commission also pointed out that requiring the company to pass on the franchise taxes by adding a surcharge to each customer's bill had the same effect as increasing rates because the company got added net income by a reduction in taxes charged to operating expenses. By adding the franchise taxes to the rate increase previously allowed the company, there was an effective rate increase very close to the 9.4 per cent and 10.6 per cent

rate increase projections used by the commission's staff.

Interest Capitalized on Equity Funds

Interest capitalized on equity funds was an accounting entry to which the commission objected. The common equity portion of total capitalization had been credited, and at the same time the investment in utility plant had been debited, with interest calculated on the amount of money invested in common stocks. The company had pointed out that the funds were accumulated by charging interest on all funds invested in equity at the rate of one per cent per month.

The commission noted that the debt portion of total capital approached the actual construction cost plus interest during construction, but did not include losses incurred from operations during the construction period. It was of the opinion that the interest capitalized on equity funds was not a proper charge as it had been entered on the accounting records because it did not meet the statutory definition of interest during construction.

The commission thought that the equity portion of total capital had been used by the company as operating capital to cover the loss sustained during the construction period. Therefore, the company was directed to remove from the accounting records the amount of interest included in the equity portion of total capital and add it to the utility plant account. *Re Intermountain Gas Co. Case No. U-1034-8, Order No. 5661, July 28, 1960.*

Plan for Elimination of Public Stock Interest in Gas and Oil Subsidiary Approved

THE Securities and Exchange Commission approved a plan providing for the elimination of the 1,843,346 shares of common stock (48.49 per cent) held by the public stockholders of Arkansas Fuel Oil Corporation, a subsidiary of Cities Service Company, by a cash payment to them of $41 per share. Elimination of the minority stock interest was required by an earlier order entered under § 11(b)(2) of the Holding Company Act.

The commission concurrently disapproved a plan filed by Cities Service which proposed the exchange of its common stock for the publicly held common stock of Arkansas on the basis of one share of Cities Service stock for each 2.4 shares of Arkansas stock. Under this plan, each public shareholder of Arkansas stock would have received $17.40 in market value of Cities Service stock for each share of Arkansas stock.

Fairness of Plan

In finding the liquidation plan fair and reasonable the commission first arrived at a value of $40 per share for all the assets, less liabilities, of Arkansas. This value was partly based on an outside offer for the assets of Arkansas which would have netted the stockholders $40 per share. Also, the commission considered the fact that a production payment was available upon Arkansas oil- and gas-producing properties, as a result of which the Arkansas stock had a greater value than it would have if no production payment were available. The additional one dollar per share was awarded on the basis of a settlement with respect to certain intercompany claims and counterclaims.

Statutory Requirements

The commission pointed out that the fair and equitable standard to be applied in § 11 reorganizations requires that each security holder, in the order of his priority, receive from that which is available for the satisfaction of his claim the equitable equivalent of the rights surrendered, and that ordinarily the measure of such claim is the investment value of his interest appraised as though in a going concern, with primary weight given to immediately operative rights, normally those relating to earnings and dividends.

Where, however, other considerations are present which are also relevant to the evaluation of a security holder's interest in the enterprise, as, for example, the receipt of a bona fide offer to purchase the entire enterprise at a price which will net the stockholders more than the appraised going concern value of their stock, or where the liquidation value of certain properties and related operations exceeds their appraised going concern value, such considerations will be given appropriate weight in determining the value of a security holder's interest in the enterprise.

Where a plan also includes a proposed settlement of claims and possible counterclaims arising out of past or present transactions between the company being reorganized and other companies in the same holding company system, the plan must be tested by appraising the contentions and defenses with respect to such intercompany claims to determine whether the proposed settlement is fair and equitable.

Settlement of Intercompany Claims

In discussing the settlement of the intercompany claims, the commission said that it is not required to adjudicate the merits of, or assign any specific monetary value to, each particular claim. It weighs them as integral elements of the "bundle of rights" of the respective claimants in order to determine whether the plan achieves a fair and equitable distribution. No fixed or settled formula can be used to determine the adequacy of the settlement, and no single amount is the "fair and equitable" figure for settlement. Rather, a wide range exists within which any settlement can be found to be fair and equitable, and a settlement reached as a result of arm's-length bargaining, while not conclusive, affords a strong presumption of fairness.

After reviewing the claims and counterclaims asserted, the commission observed that the factual and legal issues involved were complex and highly technical.

The range of possible results varied from $10,523,411 in favor of Arkansas to $8,655,635 in favor of Cities. The presentation of the claims and setoffs, and the defenses thereto, covered all aspects of the various controversies and were vigorously asserted. And, said the commission, the settlement was arrived at after extended negotiations by informed, well-advised, and able counsel and was reached as a result of arm's-length bargaining. A settlement of disputed claims thus negotiated "bears a distinctive, though not conclusive, hallmark of fairness."

The commission's own analysis of the various issues with respect to the claims litigation led it to the independent conclusion that the agreed-upon increase of one dollar per share in the payment to the public holders of the common stock of Arkansas under the liquidation plan was within the range of reasonableness and was fair and equitable not only to them but also to Cities Service.

Fairness of Stock Exchange Plan

The commission believed that those experts who believed that the exchange-of-stock plan was fair and equitable had made a fundamental error in their respective valuation approaches, since they had evaluated the Arkansas common stock as though the company were an integrated oil company. Some witnesses gave no consideration, as such, to the oil and gas reserves of Arkansas. Instead, they appraised the net income, cash earnings, and dividends of Arkansas on the basis of multipliers and dividend-yield rates which they derived from reference to selected integrated oil company common stocks.

In the light of the fact that the crude production division of Arkansas represented the predominant source of its net income and cash earnings and, consequently, of its dividend payments, and in light also of the uneconomic return earned by the marketing division of Arkansas, the witnesses, according to the commission, should have evaluated the common stock on a basis which adequately recognized the predominant characteristic of Arkansas as a crude oil and gas producer. Consequently, the commission concluded that the testimony of these witnesses was entitled to little weight.

Testimony of other witnesses seemed to indicate that the bona fide offer of General American Oil Company of Texas, a nonaffiliate of Cities and of Arkansas, to purchase substantially all the assets of Arkansas, subject to a reserve production payment with respect to the producing properties, was particularly significant. On the basis of that offer, the stockholders would receive cash of $40 per share.

The commission believed that a public stockholder of Arkansas was entitled to have his stock evaluated on a basis which would afford him a higher price for his stock in the context of a liquidation of the enterprise where a production payment is available than would be indicated on the basis of the going concern value of his stock where no production payment is available. *Re Arkansas Fuel Oil Corp. et al. File Nos. 54-227 et al. Release No. 14260, July 14, 1960.*

Claim for Undercharges in Court of Claims Stayed Pending Review of ICC Rate Order

THE U. S. Supreme Court held that an order of the Interstate Commerce Commission finding a railroad's domestic rates unreasonable as to certain freight shipments is reviewable since it is not merely advisory but has the effect of foreclosing the railroad's right to recover its domestic rates on those shipments. This ruling was handed down on review of a court of claims decree which, in effect, refused to stay a railroad's action against the federal government for undercharges pending review of the Interstate Commerce Commission order.

The railroad had applied to government shipments intended for export, but barred therefrom by conditions existing during World War II, domestic rates which were higher than export rates. When the government, in effect, refused to pay the higher rates, the railroad sued in the court of claims to recover the amount due. That court suspended the proceeding to enable the parties to have the Interstate Commerce Commission pass on the reasonableness of the rates. The commission held that the domestic rates, as applied to the shipments involved, were

unjust and unreasonable. The railroad asked a federal district court to enjoin and set aside the order and moved the court of claims to stay its proceedings until the district court could act. The court of claims refused to stay and entered judgment for the railroad in accordance with the commission order for less than the amount the railroad sued for.

The Supreme Court pointed out that the court of claims lacked jurisdiction to review the Interstate Commerce Commission order since such jurisdiction is vested exclusively in the federal district court. Furthermore, such an order is reviewable by a one-judge court rather than a three-judge district court since it is essentially one for the payment of money. For this reason the Supreme Court decided that the court of claims was under a duty to stay its proceedings pending this review. *Pennsylvania R. Co. v. United States, 4 L ed 2d 1165.*

Termination of Rate Proceedings Denied

On a rehearing petition the Federal Power Commission refused to terminate natural gas producer rate proceedings under § 4 of the Natural Gas Act, even though other similar cases had been terminated and notwithstanding that such termination would not prevent a later decision on the rates under § 5 of the act, since the proposed termination would preclude refunds of any portion of the individual rates found to be unreasonable.

Hearings in the § 4 proceedings were already in progress, and the producer could be assured of a determination of its rates within a reasonable time.

The commission pointed out that a regulatory agency is not bound to follow its previous actions, particularly where, as here, there appears to be a sound basis for different action. In any event, the granting or denial of requests to terminate individual proceedings are based on the facts of each particular case. *Re Gulf Oil Corp. et al. Docket Nos. G-9520, G-11106, G-11335 et al. August 1, 1960.*

Gas Pipeline Expansion Approved over Protest of Coal Interests And Ten-cent Formula Applied to Lateral Construction

The Federal Power Commission has authorized Michigan Wisconsin Pipe Line Company to construct new looping facilities which will enable it to carry north an additional average daily volume of 100,000 Mcf of gas from the Laverne field in Oklahoma, to meet the requirements of existing customers during the 1960-61 winter season and to serve new territory, for which allocations were authorized.

Intervening coal interests opposed the application, alleging an inadequate showing of market demand and gas supply. The commission thought the objection to market demand could not be taken seriously and, based on the applicant's reserves and the rapid development of the Laverne field, found that the pipeline would be able to achieve full utilization of its facilities within a short time.

The coal interests further contended that the commission had the affirmative duty to weigh the interests of competing

fuels in its decision on the certificate application. They offered no evidence, however, as to the effect, if any, which the pipeline's proposed service would have on the coal interests. Their allegations as to competition in this proceeding were vague. The commission knew of no mandatory obligation on its part to conduct an investigation on its own motion into the question of displacement of coal by natural gas. The facts in this proceeding clearly supported a finding of public convenience and necessity for the construction and operation of the proposed facilities.

Lateral Service

Interveners' applications for the allocation of gas to serve communities through short laterals off the system were granted. The pipeline's rate of return on such service was estimated to range from somewhat over 6 per cent in one case to 11.5 per cent in another, based on third-year sales and applying the "10-cent formula" to determine what portion of the laterals would be constructed by the pipeline.

The 10-cent formula provides that the operating costs of the lateral, or the portion to be constructed by the pipeline, shall not exceed ten cents per Mcf on the basis of the estimated annual firm sales to the distribution project in the third year. In the formula, the operating costs are set out as 15 per cent of the estimated cost of construction of the lateral, or portion of the lateral and appurtenant facilities.

The 15 per cent consists of 6 per cent returns, 3 per cent income taxes, 1.5 per cent general taxes, 3.5 per cent depreciation, and one per cent operation and maintenance.

The commission ruled that the formula should be applied to each lateral rather than to a combination of laterals required to serve several communities for which an allocation is sought by a particular intervener. Otherwise, discrimination would occur in rendering service to the various communities. The commission further held that interruptible sales under a ten-year contract should be considered along with estimated firm sales, in the application of the formula. A meter station was excluded, however, and the pipeline's estimates of the cost of laterals was considered preferable to those of the interveners. *Re Michigan Wisconsin Pipe Line Co. Opinion No. 336, Docket No. G-20569, August 6, 1960.*

Fifteen-cent Initial Price Fixed for East LaBarge Gas In Southwestern Wyoming

PRICE is an element of prime importance in the certification of natural gas producer sales, the Federal Power Commission pointed out in imposing a 15-cent price condition on proposed sales from the East LaBarge field in southwestern Wyoming. While the commission has broad discretion in determining whether a proposed initial price has been adequately supported, the price must be scrutinized closely with a view to protecting the consumer by holding the line against unjustified price rises. Particularly is this true, the commission noted, in the case of prices in new production areas where large volumes of gas may be present.

The producers proposed a contract price of 16 cents per Mcf for 860-pound gas, or 15 cents for 500-pound gas. They argued that sales at 15 cents at the lower pressure have already been certificated in this field and that 16 cents for 860-pound

gas is the equivalent of 15 cents for 500-pound gas. They asserted that high-pressure gas produced from their deep wells involves extra costs which inure to the pipeline customer and justifies the one-cent differential. They further argued that the proposed price would neither affect the price structure of El Paso nor trigger price changes due to favored-nation clauses. An initial price of 16 cents would stimulate exploration and development, it was said.

The commission held that these arguments were not so weighty as to justify the proposed price. Although it was recognized that differences in pressures and well depths have been considered in prior cases as factors pertinent to the initial price, these factors were not decisive in this proceeding. It appeared that 15 cents was the highest price at which a sale had been permanently certificated in the East LaBarge field, or in the state of Wyoming. The commission thought the line should be held at 15 cents.

The commission rejected a contention of the producers that the 15-cent condition abrogated their contracts, pointing out that their sales were merely authorized subject to the condition. *Re Humble Oil & Refining Co. et al. Docket Nos. G-13679 et al. August 9, 1960.*

Common Stock to Be Exchanged for Debentures

THE Georgia commission approved a proposal by Mid-Georgia Natural Gas Company to issue 100,000 shares of common stock at 50 cents a share par value in exchange for an equal face value of 5 per cent debentures outstanding. It was further proposed that the exchange would be made without the payment of call premiums or other penalties, and the order so provided.

The company urged that the transaction would reduce a high debt ratio, which has hampered the company in obtaining new financing for the expansion of its gas system. A better capitalization will permit future long-term debt financing at favorable interest rates.

The commission recognized that the exchange would bring the capital ratios within a range normally considered appropriate for gas-distributing companies. In deciding this application, consideration was given to the effect on the earnings requirement of the company, the income tax liabilities, and the ownership of the securities.

The Georgia commission observed, however, that future changes in the capitalization and capital ratios of the company would more appropriately be accomplished through the sale of securities for cash or other assets. *Re Mid-Georgia Nat. Gas Co. File No. 19556, Docket No. 1565-U, August 8, 1960.*

Cost of Money Not Synonymous With Rate of Return

THE Nevada commission, in granting a rate increase to a gas and electric company, as modified, pointed out that the cost of money is not synonymous with the rate of return.

But, it said, the cost-of-money theories are helpful in determining the needs of various utilities. For example, a utility which has a low interest average fixed debt does not require as high a rate

of return as a utility with a high interest average fixed debt.

Working cash was disallowed as part of the rate base. The commission used an end-of-period rate base, holding that such a rate base was proper for considering future rates. *Re California-Pacific Utilities Co. I & S No. 233, August 18, 1960.*

Other Recent Rulings

Reduced Rates. The Missouri commission directed a gas company to file reduced rate schedules which would enable the company to realize approximately 6.63 per cent return on the net original cost of its properties or 5.77 per cent on the fair value. *City of Cape Girardeau v. Missouri Utilities Co. Case No. 14,332, June 29, 1960.*

Gas Rate Return. The Indiana commission considered a return of 6 per cent on a gas company's fair value rate base reasonable. *Re Boonville Nat. Gas Corp. No. 28486, July 22, 1960.*

Gas Certificate. The Indiana commission granted a certificate to a gas company to serve certain rural areas upon a showing that the company was financially responsible and that public convenience and necessity required such service. *Re Boonville Nat. Gas Corp. No. 28488, July 22, 1960.*

Excess Facilities Approved. A water company serving a rapidly growing territory was held by the California commission to have invested prudently, for ratemaking purposes, in a 33-inch main transmission line even though this capacity would not be fully utilized until 1970, where, had a smaller line been built initially, another would have had to be constructed in 1963 at a greatly disproportionate cost in comparison with the 33-inch line. *Re Palos Verdes Water Co. Decision No. 60477, Application No. 41567, August 2, 1960.*

Gas Security Issue. The Georgia commission authorized the Atlanta Gas Light Company to issue new common stock to finance construction, upon a showing of pro forma capitalization of 50.6 per cent debt, 9.3 per cent preferred stock, and 40.1 per cent common stock and surplus. *Re Atlanta Gas Light Co. File No. 19367, Docket No. 1569-U, August 8, 1960.*

Tacking Bus Routes. The North Carolina commission ruled that any right which a bus company might have had to tack two operating authorities was lost by nonuse thereof, and that it could not, after a period of twelve years, revive such right and offer through service. *Re Carolina Coach Co. Docket No. B-15, Sub 117, August 10, 1960.*

Substitution of Natural Gas. The Wisconsin commission authorized a gas company to substitute natural gas service for water and propane-air service upon a showing that such substitution was economically feasible and required by public convenience. *Re Wisconsin Pub. Service Corp. CA-3880, August 23, 1960.*

INDUSTRIAL PROGRESS

e Natural Gas Industry Looks to a

Decade of Opportunity

While the natural gas industry continues to report record-breaking expansion all over the United States, growing competition emerges as the main over-all problem ahead. Here is an impressive collection of statements by utility executives describing their companies' activities for coping with this and other problems.

FRANCIS X. WELCH, *Editor*

E year ago in the special issue PUBLIC UTILITIES FORTNIGHTLY ch was published contemporansly with the American Gas Assoion Convention then held in Chio, emphasis was placed on the dynic growth which has characterd postwar expansion of the gas ustry. This year, we have again ed upon executives of natural gas npanies to contribute statements this special issue to be distributcontemporaneously with the 42nd ual convention of the American s Association to be held in Atic City, October 9-12.

t is interesting to note that the phasis in 1960 seems to stress blems of the industry which are ning to the fore in the critical years ad.

t is clear from a reading of these tements that our natural gas extives are realistically expecting npetition, and have made plans to e with such competition. This is e not only in the space heating field ere oil, coal and other rival fuels luding electricity, to some extent, bidding for the consumer's dol- but also in the newly developing a of miscellaneous gas appliances. The gas industry is meeting the challenge, but how?

No two companies are alike in their requirements or circumstances of doing business, but quite a few show a practical recognition of the fact that the gas industry must get back to good old-fashioned salesmanship. Salesmanship is something that has been eclipsed to some extent since the end of world war II. Before the war, there was much attention given to the training and development of aggressive sales personnel. Then followed the period of pipe line expansion into every corner of the nation; and for a while gas industry people could afford to be order-takers rather than salesmen in the traditional sense of the word.

Now the picture is changing. Once more competition, or the threat of competition, has become so obvious that the day of the complacent order-taker appears to be passing, in many service areas.

This is not to suggest that there has been any arresting of growth. Statistics on expansion still push upwards everywhere. Yet the alert company officials know that to keep the trend up will require more than sitting around to watch the demand grow.

We salute the acumen and initiative of these far-sighted natural gas executives. Their statements without exception show a down-to-earth recognition of the job ahead. It will not be an easy job. Added to the problems of inflation, political and regulatory uncertainties in some areas, there is the challenge to individual companies to keep up with the parade or even surpass the general pace.

On the whole, we feel this collection of company official statements presents an optimistic and reassuring picture. It also reflects a vote of confidence in the resourcefulness of the gas industry and its ability to meet the varied and increasing demands for service. For this reason, we feel that the following collection of communications from gas distribution and pipeline company presidents and other officials contains a tribute to an outstanding public service industry as well as to the men who have the serious responsibility of seeing that it measures up to its own tradition. The statements follow in alphabetical sequence according to company name.

American Natural Gas Service Company

Detroit, Michigan

RALPH T. MCELVENNY, *President*

IKE many other gas utilities, the American Natural Gas Company tem faces a great responsibility ring the 1960s. Residential gas reirements continue to climb at a recpace. At the same time, industrial ns are turning increasingly to natural gas for greater efficiency, economy and technological progress.

By co-operating fully in these developments, a gas utility can make a vital contribution to the economic growth so vitally needed for America's soaring population and the maintenance of its world position. The availability of adequate gas supplies is essential to this end.

In behalf of that objective, the American Natural system carries on an extensive and continuing expansion

(*Continued on Page* 36)

program and diversification of its sources of supply. This has included the construction of two subsidiary pipelines which tap huge gas fields in the Southwest and the Louisiana Gulf coast.

At the present time our system is installing expanded facilities to purchase 158 million cubic feet of gas daily from western Canada, as authorized by the Federal Power Commission and the Canadian government. With the addition of this new source in a few days, our markets will be linked with the three largest gas producing areas in North America. As a result, our customers are able to benefit from developing supplies in each of these key producing areas.

This fall, one of our pipeline subsidiaries will increase deliveries by 100 million cubic feet daily from the expanding Laverne field in Oklahoma, pursuant to a certificate recently issued by the Federal Power Commission. This line also has pending a further request for authorization to purchase 75 million cubic feet daily from Northern Natural Gas Company at an interconnection to be constructed in Wisconsin.

These expansion programs will boost the deliverability of American Natural's two pipelines to about 1.26 billion cubic feet daily. In addition, the system operates large underground storage fields convenient to its markets which can readily deliver more than a billion cubic feet daily during the winter period of peak demand.

Expansion and flexibility in supplies have enabled our system to keep pace with spiraling gas needs including the demands of 900,000 heating customers. Our sales, as a result, have tripled in the last decade.

Recently, our largest distributing subsidiary signed the largest single industrial service contract in its history. This provides for sales to Great Lakes Steel Corporation of up to 25 billion cubic feet annually—much of it on a firm delivery basis. The gas wi used to operate a powerful new mill and new type blast furnace o tion.

As other large industrial need velop in our market areas, the A ican Natural system will take necessary to serve them . . . while tinuing to meet soaring residentia commercial requirements.

While expansion programs of type are costly (our current cons tion projects total $74 million) expenditure is small when comp with the tremendous economic social benefits derived by the served.

These growth programs and th versified sources of supply, toge with the policy of management to chase additional volumes of gas expand facilities whenever needed sure our growing markets of all gas they need for the present future.

Arizona Public Service Company

Phoenix, Arizona

WALTER LUCKING, *President*

ARIZONA PUBLIC SERVICE is now in its twenty-sixth year of providing natural gas service in the state. This period has been marked, particularly in recent years, by explosive growth.

Our company is currently growing twice as fast as the industry nationally. Twenty-five years ago we served 12,000 gas customers. Today we serve 185,000; and by 1970 we expect this figure to jump to 335,000.

Naturally this tremendous growth poses all of the normal problems faced by gas companies, such as the raising of capital, extending lines and services, and securing adequate fuel s plies.

But we face other problems al some of them brought on by the w drous climate that attracts so m people to Arizona. Although we g ate in one of the nation's major wi resort areas, we also experience siderable differences in weather f winter to winter.

Mild winters produce low gas enues and colder winters natur produce higher revenues. We h just received approval from the zona Corporation Commission f new billing program which we h will alleviate some of the probl brought on by these differences in weather.

Applying only to the reside rate, this "weather adjuster form permits customers to benefit fro reduced price per therm on high sumption in unusually cold weat Conversely, there will be a slight crease in the per therm price in usually warm weather. (This apply during the normal hea months of November thro March.)

We feel that this approach will h double advantage of leveling an heating bills for our customers an

(*Continued on Page* 38)

JACKSON & MORELAND, INC.
JACKSON & MORELAND INTERNATIONAL, INC.

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SURVEYS—APPRAISALS—REPORTS

MACHINE DESIGN—TECHNICAL PUBLICATIONS

BOSTON WASHINGTON NEW YORK

Gas Service for Small Towns...

at some distance from existing mains

So far in 1960, Dayton Power and Light has added nine small towns to its gas system—all of them several miles from the nearest transmission pipelines. And plans are being made to add several more next year.

The procedure:

1. Meetings with village council and interested civic groups.
2. Agreement to rates that will provide minimum returns on initial high investment per customer.
3. Collection of refundable cash deposit from potential customers by a local committee to assure sufficient participation.
4. Definite indications of future growth.

Rates are still competitive with other available fuels. The major reason for municipally-owned systems is eliminated.

THE DAYTON POWER AND LIGHT COMPANY

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HERE'S HOW YOU CAN GET MORE DITCH PER DOLLAR!

Photos above show the versatile Vermeer 4T POW-R-DITCHER digging a gas main trench. Manufactured for the light construction field, this small, inexpensive ditcher is excellent for water and cable lines and home foundation footings.

RUGGED, LOW COST 4T

POW-R-DITCHER

DIGS 6"-14" WIDE
DOWN TO 4½' DEEP

The small powerful, ruggedly built Vermeer 4T POW-R-DITCHER is designed especially for contractors, municipalities, utilities, institutions and custom operators. Only 46" wide, the 4T is fast . . . and highly maneuverable. One-man operated, the POW-R-DITCHER is self-propelled, has two-way dirt conveyor and hydraulic track drive. Handles most ditching jobs at a fraction of the cost of more expensive ditching machinery.

IDEAL FOR LAYING GAS PIPE, WATER AND CABLE LINES AND FOR HOME FOUNDATION FOOTINGS

The 4T POW-R-DITCHER is the finest buy on the market when you want a low cost investment, low maintenance cost and high production. Capable of handling most ditching jobs, the 4T is a real workhorse!

Please send me FREE information and prices on the complete line of self-propelled Vermeer POW-R-DITCHERS.

NAME _____

TITLE OR DEPT. _____

FIRM _____

ADDRESS _____

CITY _____ STATE _____

VERMEER MFG. CO.

1453 W. WASHINGTON, PELLA, IOWA

the same time will tend to level overall gas revenues for the company.

In addition, we are constantly searching for new ways to eliminate the peaks and valleys in consumption.

Last year we instituted a gas irrigation-pumping program which provides a substantial reduction in pumping costs for the farmer-irrigators in our service area.

Under this plan, we install, service and maintain natural gas engines for the irrigation pumps. The farmer pays us only for the energy we deliver to his well head and he is relieved of investment and maintenance costs on the engine. This program will result in approximately 10 per cent reduced pumping costs in addition to the savings to the farmer from reduced investment.

Since we are a combination company, this program is doubly advantageous for us. Most of the pumping occurs in the summer when we normally experience our electric peak. As we are able to replace electric pumps with gas-fired engines, we reduce electric requirements during the peak season and have a summer market for natural gas that would not otherwise be available.

We have also launched an intensified campaign to promote the u gas-fired air conditioning in our ice area to help achieve these advantages.

Most of our efforts in this field been directed to the large tonnage such as hospitals, office buildings, large commercial and industrial tablishments.

During the past two years, than 35 per cent of the business commercial air conditioning ton installed in the Phoenix area has gas-fired. In recent months, howe there has been a marked upswin the number of residential gas installed.

We have also been active in the motion of gas post lamps, and in past 14 months have sold more 10,000 lamps in our service area.

These are a few of the methods employ to improve the "quality" of gas business at the same time tha are increasing the quantity of business.

We feel that we must have "quality" if we are to reach our objective of good service at reason rates for the customer and a fair turn for those who have invested money in our company.

Central Electric & Gas Company

Lincoln, Nebraska

KENNETH L. DALLY, *Vice President and Director of Personnel*

LIKE many other utility companies, Central Electric & Gas Company has for many years been making substantial and continuing progress. As a result, we now provide more services, with added efficiency, to a greater than ever—and steadily increasing—number of customers. And, consistent with general progress, a considerable number of the services we now provide were not even dreamed of ten years ago.

We recognize, however, that business gains during the past decade exceeded everyone's expectations and made it essential for most companies to quickly train and develop additional personnel. Since our competitors were similarly involved, this condition, for the most part, did not assume serious proportions, although it undoubtedly did have the effect of reducing normal competition for the business available.

Now and within the next decade, additional business gains requiring the services of even more highly skilled, trained and experienced personnel are again being anticipated. Support for this anticipation includes our const ly increasing population (U. S. C sus Bureau estimates 30 per cen 1975) and associated gains; increa and additional uses; new and proved appliances; additional hou and other construction.

Competitively, however, we re nize that the situation no longer it was during the past ten years. S stantial business gains now are an pated and are being carefully ev ated; organizations generally have more, better trained and exp enced personnel and they are be prepared to meet the requirements sociated with whatever the additi business.

It, therefore, seems proper to sume that greatest business gains ing the next decade will be obta by those companies which are prepared to meet what the service requirements; whose ployees are best qualified and enthusiastic about the services have to sell; and who aggressively

(*Continued on Page* 40)

The hot stuff's hotter

e to Minneapolis-land — it's gas-conditioned. photo shows how Metallurgical, Inc., gas- itions the atmosphere in which metal parts are treated; thus preventing build-up of scale on urface. Gas, as always, contributes to cleanli-

allurgical, Inc., has the world's most modern pment for heat-treating in the jet age (the firm e of the few in the U.S. equipped for treating , Polaris, and other missile parts).

. Ridinger started his business on a $300 shoe- g, saw it grow into the biggest of its kind in area. Gas produces precisely controlled tem- peratures, flexibility of operation, and sure-fire heat patterning—all at less cost.

Annealing, hardening, forging, brazing, tempering, stress relieving, carburizing, face hardening—these are some of the jobs that gas does for Metallurgical, Inc. as well as other firms in the Greater Minneapolis area.

Come to Greater Minneapolis—opportunities are hot. **go first-class . . . with gas**

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Minnegasco
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egasco advertises to attract business to Greater Minneapolis, tells Minneapolitans, as well as utside world, about the beauties of our area.

after the additional business. All of which, of course, calls for training in advance of whatever the needs that are to be served.

The solutions for whatever problem-opportunities we and other utility companies will face in the future undoubtedly can be facilitated by even more thorough training assistance for our supervisory, as well as our nonsupervisory, personnel.

Our experience, at least, confirms that when supervisory and nonsupervisory employees are recognized as important members of our team, and encouraged to think and to plan ahead with us, they are quick to accept and put into effect the objectives of whatever our training programs and afterwards aid in improving them and in the development of additional programs.

Our training programs—which are increasing in quality as well as in number—are conducted through three company training schools which have full-time directors; well qualified, full-time instructors; and the authority to call upon division or general office department heads for whatever counseling or assistance is needed.

Although the concentrated training programs we conduct at these schools have, for the most part, been for the training of nonsupervisory employees, training is also provided at these schools and at other locations for our supervisory personnel.

Generally, we find that the training offered at our schools is a particularly helpful supplement to the on-the-job training done by supervisory employees who have the responsibility for following through and seeing to it that lessons learned by their employees, whether on the job, or in off-the-job training programs, are understood and observed.

We also are endeavoring to take greater, more effective, better planned advantage of the many training aids and assistance made available to us through various manufacturers, suppliers and other organizations which include: other utility companies, technical schools, business colleges, high schools conducting specialized evening courses by arrangement with the company and universities conducting public utility management development and other programs relating to our business.

We recognize that our accomp
ments in the field of training an
veloping personnel will never cat
with the constantly increasing p
tials. Nevertheless, we are sure w
moving in the right direction—
more and more understanding, pa
pation and appreciation on the pa
our supervisory and nonsuperv
personnel—and at a gradually acc
ating rate.

In all of our training efforts, w
inspired and pressured, too, by
recognition of the facts, that—

> Any progress our compan
> ever makes will be dependen
> upon the thinking, training
> abilities and the co-ordinate
> efforts of its employees; an
> that
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> The potentials of our compan
> and of its employees collectiv
> ly are much greater than ou
> accomplishments will be unles
> we continue to effectively ex
> pand, improve and supplemen
> our training activities to th
> end that maximum personne
> development will be facilitated

Central Hudson Gas & Electric Corporation

Poughkeepsie, New York

ERNEST R. ACKER, *President*

ALONG with most gas distributors in the northeast, Central Hudson continues to face serious challenges in both its current operations and long range outlook. Chief among these problems are increasing prices for gas purchased from pipeline companies, increased operating expenses due to higher costs of materials and labor and increased competition from other fuels.

In making every effort to meet these challenges by reducing operating costs, Central Hudson has recently completed the installation of automatic controls of its major gas regulating stations. Also of importance in the strengthening of the position of our gas operations has been the recent construction of additional transmission and distribution facilities to reenforce the system and assure the company's ability to serve all of its customers should the gas supply from either of its two sources be interrupted.

Over the past two years, natural gas has been selected as the house heating fuel by the builders of nine out of ten new homes in the company's territory in areas where gas is available. In addition, the company has been successful in promoting the character
high quality of natural gas a
large volume industrial custo
Central Hudson will continue to
mote the advantages of natural
through a stepped-up sales pro
involving more productive use of
tomer contacts and continued clos
ordination and co-operation with b
ers, heating contractors and gas a
ance sales and service organizat

The future success of the na
gas business in this region will re
that distributing, pipeline and pro
ing companies and appliance
equipment manufacturers recog
their common interest in a hea
growth in our industry. They m
work together to keep costs and pr
realistic and to develop more us
and less expensive high quality eq
ment and appliances that can, thro
aggressive promotion, capture
imagination of consumers. The
cessful future of our industry
also be dependent upon some of
same factors that will influence
American businesses; the retar
of the inflationary trend, a more e
table tax structure and our abilit
sell and strengthen the advantage
the free enterprise system.

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Consumers Power Company

Jackson, Michigan

A. H. AYMOND, JR., *Chairman of the Board*

GE new supplies of natural gas enabled Consumers Power Company to remove restrictions on gas heating sales and resume full-promotional activities during

July 31, 1960, the company was ng 517,000 gas customers of all ifications, 29,000 more than at 31, 1959. The number of customers receiving gas space heating ce had risen to 313,000, an increase of 56,000.

tal gas sales this year have run r cent above those of 1959. The tial for continued growth in our unty gas service area in southern igan is good, particularly in the suburban communities near Detroit, which have been expanding rapidly in population and in manufacturing and commercial activity.

The new supplies of natural gas come to us mainly as a result of a new contract with Trunkline Gas Company, which early this year began deliveries at the rate of 100 million cubic feet per day. These deliveries will rise year by year (subject to Federal Power Commission approval) to 200 million per day in 1963, supplementing our basic supply from Panhandle Eastern Pipe Line Company. Smaller supplies are available from Michigan production.

The cost of natural gas delivered to Consumers by the pipeline companies is substantially higher than it was a few years ago, not only because the new supply from Trunkline is more costly, but also because of applications for rate increases filed with the Federal Power Commission by our suppliers which already are in effect under bond.

Higher gas costs and other increases in the over-all cost of providing gas service made it necessary for Consumers to file an application with the Michigan Public Service Commission in June asking authority to revise our own rate schedule upward. Hearings on this application are expected to begin in early autumn.

The Dayton Power and Light Company

Dayton, Ohio

KENNETH C. LONG, *Chairman of the Board*

The Dayton Power and Light Company, we have felt for some that the demand for gas service maller communities at some distance from existing gas mains had ressed to the point where it deed our special attention.

e have put together a plan that is rently working out very well for ourselves and our potential customers. If any community has sufficient interest in the installation of a distribution system to make it a er of official action, we will immediately meet with the council.

ur proposition requires two basic edients. 1. The village must ape a rate which will provide an uate return on the capital investt required to bring gas into the 2. There must be a sufficient ber of customers to make it ecocally practical now or in the near re. A committee of the council, or zen group, makes a canvass and ns a hundred dollar deposit from nterested customers. This money turned if the project fails or when ustomer's service is connected to ines.

his plan has been highly successIt has been unnecessary for these s to assume heavy debt obligato build their own systems or to local distribution companies. In 1960 it has resulted in nine new communities being added to our system. Even with the higher rates, natural gas is competitive with both coal and oil for residential heating. The customer receives the benefits of natural gas service immediately. The company must be satisfied with a low initial return, but we are confident that future growth will make the whole venture profitable.

(*Continued on Page* 42)

Bringing
Dependable Natural Gas
to the
Great Plains Area

KANSAS-NEBRASKA
Natural Gas Company Inc.

For Dependable GAS Service

Hastings, Nebraska — Phillipsburg, Kansas

Delaware Power & Light Company

Wilmington, Delaware

F. P. HYER, *President and General Manager*

REVENUE from gas heating sales which has become the bellwether of most companies in the northeastern states continues to increase in ever larger annual increments. The unprecedented rate of new home construction in northern Delaware and the almost 100 per cent use of gas for heating in these houses account for this market gain and consequent controlling effect on our system peak.

To meet these substantial gains in load, we are utilizing and will continue to participate in gas storage developments which are available to us. Plans are underway to augment system production facilities, improve system security and meet peak loads. These improvements, plus adequate allocations of firm gas from our supplier, would enable us to continue to serve efficiently the large additions of low load factor gas imposed by residential heating.

However, we are becoming increasingly concerned with the delay in and uncertainty of the outcome of certificate cases involving the delivery of firm allocations by pipeline companies, and to a lesser extent with the upward trend in the cost of gas delivered to our system.

The present confusion and controversy regarding certificate cases can only result in delay and uncertainty in the delivery of firm allocation pipeline companies. Should this seriously impair our ability to our customers through one he season, untold damage will have done to the standing of the gas u industry and the governmental a cies charged with responsibility f regulation in the eyes of its custo shareholders, and employees.

An equitable and expeditious tion to the multiplicity of gas pro tion problems now besetting the eral Power Commission must found if the gas industry is to with confidence to meet growing quirements of its customers.

Equitable Gas Company

Pittsburgh, Pennsylvania

D. B. BEECHER, *President*

Sales Can Cure Many Business Ills

OUR many problems of procurement, production, transmission, distribution, storage, regulation, finance, labor and a host of others can be handled more expeditiously and efficiently if sales—profitable sales—are realized today and if they can be anticipated when we peer into the future.

Storage facilities permit us to sell peak winter loads at a profit. This basic, high volume business is in jeopardy. Oil and coal have been competitive fuels for many years and millions of dollars will be spent to launch programs all over the country promoting the relatively new use of electrical energy for heating. All year round use appliances such as ranges, water heaters, dryers and refrigerators are now highly competitive.

In addition to meeting competitive problems we should guide sales effort toward obtaining:

1. High load factor applications
2. Off-peak business
3. Volume sales of appliances with comparatively small individual loads

The value of high load factor and off-peak business is obvious. Some gas equipment and appliances such as refrigerators, air conditioners and gas dryers, have low revenue return per unit, but the volume possibilities are so great that worthwhile saturation of such markets can be very profitable. The psychological effect of each piece of equipment on the All-Gas House concept, as well as on the over-all use of gas in commercial establishments, adds further to the importance of every piece of gas-using equipment.

Electricity has become highly competitive for many types of commercial and residential appliances and equipment. Our sales job must include the retention of existing business against competition, as well as the sale of new appliances in volume against competing forces which constantly are expanding and strengthening their operations.

Experience in almost every state has demonstrated to operating companies that rate increases to offset rising operating costs, regardless of the justification, will not be approved without time lag inherent in regulation.

We also must be mindful of the experiences of other industries and realize that, even if rate increases are granted, the gas industry might "price itself out of the market" and the point could be reached where competition rather than regulation will control our destinies.

The only sound solution to this problem, after operating economies are practiced in every possible way, is to increase sales—profitable s

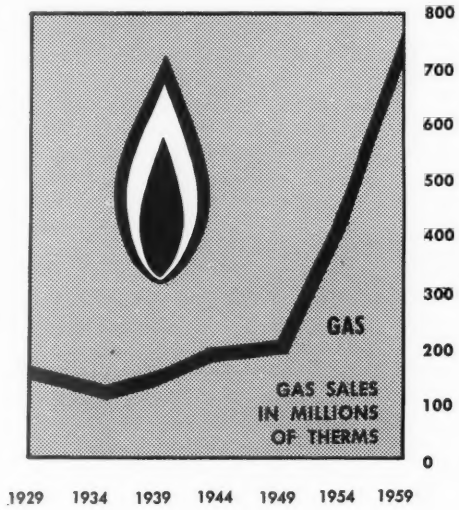
These objectives "just won't pen." They will require marke programs which include effe sales, service and public relations tivities which are conducted enth astically and administered in an telligent manner.

More than ever before, our s challenge will require:

1. A comprehensive knowledge of our markets
2. Trained sales personnel
3. Cultivation of our markets by effective advertising and promotional activities
4. Aggressive, enthusiastic inspired sales effort covering all markets. A sound, intelligently conducted merchandising program by the company is an important ingredient in the sales efforts in the residential market.

Indications are that the indus can have confidence that they can r ize the necessary sales objectives they tackle the market in an intelligi enthusiastic manner. The activities the Equitable Gas Company will administered and directed tow achieving sales objectives which only are desirable and valuable but absolutely necessary for our fut welfare and growth.

The use of GAS is on the upswing in Public Service Territory



Gas consumption by our customers in New Jersey is expected to reach 846,000,000 therms this year, and it is forecast that there will be a 45% increase in the use of gas in Public Service territory within the next five years!

More than $20,000,000 will be expended this year for new construction, automation of equipment and receiving stations and "looping" within our distribution system.

Our constant planning for the future, assures the growth and dependability of our gas service!

PUBLIC SERVICE

A-361-60

Greeley Gas Company

Denver, Colorado

HOMER S. LANNING, *Vice President & Treasurer, and*
LEE E. SCHLESSMAN, *Vice President, General Operating Procedures*

Putting "Peopleness" Into Advertising and Community Relations

IT'S not easy for a small but growing gas utility to do a uniform, consistent public relations job, when its 23,000 meter customers are scattered throughout 36 communities in five districts—three in Colorado, two in Kansas—with 120 miles between the two closest districts!

Yet we believe Greeley Gas Company rates well in these communities, from this standpoint: that people think of Greeley Gas Company, not as a "faceless monopoly" (the fate of many utilities), but as a working citizen, a good neighbor and the friend of all it serves—and that includes nearly everyone.

How have we been able to establish this personal bond between the company and such widely separated customers while doing an effective sel job on natural gas and gas equipme

That's where "Peopleness" co in.

Think of "Peopleness" as being *togetherness*, but on a larger sc It suggests the *human touch*, recog ing the fact that customers are pe who expect you—a busine s—to people, too. It's part of the "two- street" idea, whereby the utility sho contribute something to the com nity, not just wrest a profit fro merely by delivering natural through a pipe.

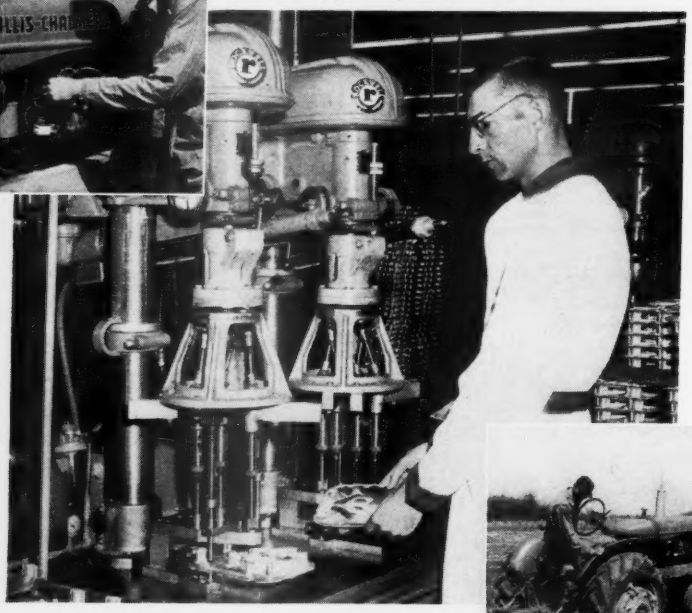
"Peopleness" works for Gre Gas Company in nearly every pl of operation. It's reflected in mod well-maintained properties, courte personnel, generous employee w scales and benefits, safe driver aw programs, and active participation individuals in civic affairs. In "Blue Flame Rooms," the comp furnishes (at no charge) kitch laundry demonstration and meet facilities to thousands of custom in club groups and community ganizations.

But perhaps the most immedia apparent evidence of the human proach is in our weekly advertis program, which we believe to b force second only to our personne establishing and holding a warm r tionship with our towns.

We like people, and we like peo in our ads. We try to get into all advertising a feeling of friendlin of course—but, *beyond that*, deeper elements of *human inter* helpfulness, fairness, service, progr and community betterment. Our vertising must make people "f good" about natural gas and the co pany that brings it to them.

Greeley Gas Company's advertis is divided into four main subjects:

(1) *Appliance promotion* is signed more to get across the gene benefits and *enjoyment* of gas to derived from the latest gas applian rather than to tout any partic brand. While we do occasionally vertise brands and prices, we feel t the natural gas utility must offer le ership in promoting the use of mod gas-using appliances and equipme By so doing, alert independent pliance dealers can "hook on" to



Typical spring day of Russellville small-farmer Ronald J. Starks: Daylight to 6:45 A.M., chores and equipment maintenance; 7 A.M. to 3:30 P.M., shift as setup man at Rockwell Manufacturing Company; after hours, plowing and planting till dark.

"MAKING CROP"
in Kentucky, 1960 Style

For thousands of Kentucky's small-farmers, tractors have shrunk the tasks of the home place to part-time size. But the steady, urgent rhythm of "making crop" is in their blood. *With their help many Central and Western Kentucky branch plants out-produce all other units operated by the same companies.*

Other special advantages of Central and Western Kentucky are our cross-roads location, abundance of sites, access to major waterways, native raw materials, power, and an excellent gas supply. Financing *has now been created* to raise Kentucky's schools several rungs up the national ladder.

Experienced executive specialists in the Industrial Development Department of Western Kentucky Gas Company will gladly assist you in investigating. Handling is confidential. Call or write us today.

WESTERN KENTUCKY GAS COMPANY
GENERAL OFFICES OWENSBORO, KENTUCKY

paigns to merchandise their own nds and terms.

2) *Gas product promotion* keeps tomers happy and enthusiastic ut their natural gas service—es- ally in home heating and air con- ning. Its job is to make allies out ustomers; get them thinking that is truly a great service, and is th every cent of the monthly bill-

3) *Reminding customers* of the mptness and efficiency of the com- y's *gas service* builds good will, by ring information that leads to ter longrange satisfaction and, efore, customer *loyalty*.

4) *Institutional messages* are ghtfully prepared to mirror the pany's interest in *people* and their c convictions. These messages ap- regularly on such occasions as istmas, Easter, Independence Day, me tax time and election day. ile these themes admittedly do not l" Greeley Gas service or mer- dise, we believe firmly that they elp establish the utility in a posi- tion of prestige and respect as a "citizen" helping preserve a high standard of living in the communities served.

It is worth mentioning that fully half the company's advertising is devoted to the last three subject classifications.

Is this whole program worthwhile? Yes, *definitely!* Carefully planned advertising, packed with "Peopleness," has helped Greeley Gas Company build greater and more uniform load through year-round use of gas equipment. Also, there is income from the direct sale of appliances. Moreover, by keeping customers informed —such as suggesting care of their heating equipment in spring and fall —the work schedule of each district's service department is eased to some extent.

This long-haul philosophy has had a marked effect on how the public feels about rate increases, service expansion and the renewal of company franchises. We have found that, in towns where this kind of continuing advertising plan is a strong part of a utility's operations, there is a very high level of service satisfaction and community acceptance of both natural gas and the company itself. In the matter of rate pass-ons, for example, there is a minimum of customer reaction and never any real opposition.

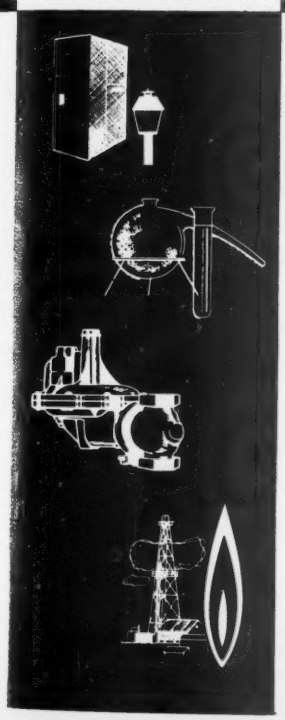
All Greeley Gas Company advertising, publicity and collateral material is prepared by our advertising agency, Galen E. Broyles Co., Inc., of Denver, whose offices are convenient to our administrative headquarters for the entire gas distribution system. Having served us for 12 years, the Broyles organization is like one of the family, and is able to handle all details of creating and co-ordinating an effective program with minimum supervision on our part.

Since both company and agency agree wholeheartedly in the concept of putting "Peopleness" in our advertising, the team works well together in building a successful "small but growing" gas utility, with the accent on "growing" in all five districts containing 36 communities of our favorite customers—*people*.

ARKLA

ARKANSAS LOUISIANA GAS CO.

and wholly owned subsidiaries



Arkla Air Conditioning Corporation

Arkansas Cement Corporation

Arkansas Louisiana Chemical Corporation

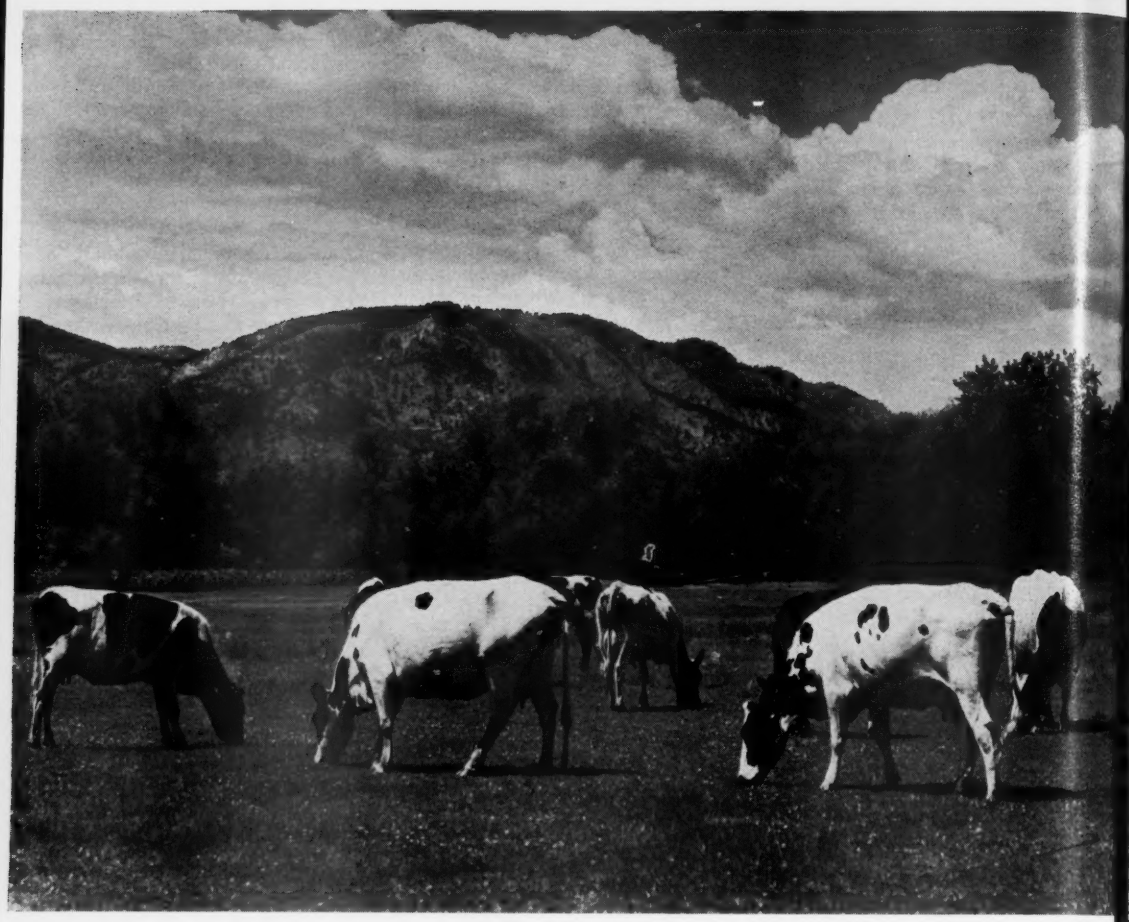
Arkansas Louisiana Finance Corporation

Reynolds Gas Regulator Company, Inc.

Pitts & Bryant Co., Inc.

Arkansas Industrial Pipeline Corporation

LITTLE ROCK, ARKANSAS & SHREVEPORT, LOUISIANA



THERE MAY BE HOMES HERE NEXT YEAR

From the Rockies to the Gulf lies a big and busy land. *Big* in space, *big* in minerals and big in oth gifts of nature, and *busy* building homes, schools and buildings for a growing population.

Southern Union Gas Company serves more than 340,000 customers in 71 cities in Texas, New Mexi Arizona and Colorado. Gas customers in some of the principal cities — Albuquerque, El Paso and Aust for example — have doubled in the past 12 years or less.

In smaller centers like Farmington, New Mexico, customers have increased 500 per cent in the l decade. It's a challenge, serving such a vigorous area. So much depends on natural gas!

To give growth here a free rein, Southern Union has had to look ahead and invest ahead at an avera of $11 million a year, bringing our total investment to date to more than $142,000,000. Today, as usu we're looking past the newly sectioned suburbs — out into the prairie. That's where the streets will before long. Southern Union and its 16,500 stockholders have faith in this country that is just n beginning to grow!

Serving the Great Southwest — America at its best

SOUTHERN UNION GAS COMPAN

The Hartford Gas Company

Hartford, Connecticut

W. T. JEBB, *President*

UR company will start construction this fall of a central station nt to provide both steam for heat- and chilled water for the air ditioning of the buildings in Constitution plaza, Hartford's comprehensive downtown redevelopment. It be the first plant of its kind in country owned and operated by a utility.

The large air conditioning load ch we will serve with this plant provide us with a prime outlet excess summer gas and improve overall load factor. Since the op- tion of this central station will be er our control, we can easily tch fuels to our best economic ad- tages.

The use of this central plant will eliminate the need for the new buildings in the redevelopment and adjacent area to provide for their own individual heating and air conditioning plants, thereby saving valuable space for other purposes, and will eliminate the need for unsightly water towers usually installed on the roof of buildings.

The central station will be situated in close proximity to Constitution plaza, the redevelopment area, and the landscaping and architecture will be such as to make it an attractive addition. A pumping system will be installed to supply river water from the nearby Connecticut river. The cost of the building, equipment and distribution system will be in the neighborhood of $3 million.

Initially built to serve Constitution plaza, the plant will provide for eventual doubling of capacity to 200,000 pounds of steam per hour, equal to 6,000 boiler horsepower. Steam will operate refrigeration equipment capable of freezing 9,000 tons of ice per day.

By taking over the job of heating and air conditioning the buildings in this downtown redevelopment, we become one of the major factors in the city's modernization program and establish gas as meriting first consideration in any future projects of similar magnitude.

Iowa-Illinois Gas and Electric Company

Davenport, Iowa

CHARLES H. WHITMORE, *President*

August of this year gas was made available without limitation—for first time since 1947—to all large mmercial and industrial users for ce heating and other applications hose service areas of Iowa-Illinois s and Electric Company for which is obtained from Natural Gas peline Company of America.

Totaling 32.5 million cubic feet per , the allocation of gas which made possible also permitted initiating vice in certain areas not previously ved. It was preceded by the reval in 1958 of restrictions on the e of gas for space heating by resitial and small commercial cusners.

Typical of the growth in gas rements which have exceeded the pply since 1947 is the increase of 7 per cent in total sales of firm gas ring the year ending July 31, 1960, comparison with the previous year. ring the same period interruptible es advanced 8.5 per cent, and the mber of residential space heating customers increased by 8.4 per cent to a saturation of about 88.5 per cent in relation to the potential.

During 1960 increased promotional emphasis has been placed on gas air conditioning through a co-operative effort with dealers in featuring modern gas homes, and by means of direct-by-mail, newspaper, and radio advertising.

One of the more unusual programs which we have initiated recently is known as "The Individual in Politics." Consisting of a discussion course, it has 1,600 employee participants. The objective is to stimulate interest and participation in politics as well as promote better knowledge of government.

Strictly nonpartisan in nature, it consists of a series of one-hour meetings each month which started in July and will extend through November. The discussion material was developed from information contained in the "Action Course in Practical Politics" of the U. S. Chamber of Commerce.

To permit complete participation, the employee organization was divideded into 58 groups of twenty-five to thirty individuals, each with its own employee moderator. Each monthly session covers a given phase of political organization procedures, policies, and problems, which is written up in text form and distributed among the employees in each group several days before the date of each meeting.

As a feature of the July meetings, a representative of each major party spoke before each group, endorsing the program, and urging more active interest and participation in politics. Presentations at the meetings include movies, charts, and folders.

During the year of 1960 Iowa-Illinois will spend a record $23 million for expansion and improvement of its gas and electric facilities in keeping ahead of the ever-increasing requirements of the areas served.

Iowa Power and Light Company

Des Moines, Iowa

A. PAUL THOMPSON, *President*

s part of Iowa Power's continuing program to improve the yearnd use of the investment in propy, a new promotional rate has been into effect to encourage the use of ural gas during the summer for conditioning. We pay heavy fixed rges throughout the year, demined by the amount of gas needed for delivery to the customers for househeating on the coldest day of the year. A new market is needed during the summer months. The promotion of gas air conditioning will tend to fill this void and make the use of the gas system more uniform throughout the year.

This fall the company will add seven new communities to its gas service. It is interesting to note that the applications exceeded estimates by 53.7 per cent in these communities. Availability of gas supply is satisfactory to meet further growth in demand for service, and beginning in 1961 the company plans to introduce

(*Continued on page* 48)

natural gas service in another 23 communities in Iowa.

This area is the richest agricultural area in the world but it is no longer predominantly agricultural in nature. Each agricultural dollar is now being matched by two industrial dollars, and farming as an industry now ranks fourth in dollar volume in the area served by Iowa Power.

The decade of the 50's witnessed great advances in the building of the load. Natural gas outstripped all other services, approaching virtual market saturation. New appliance development, growth in present communities and service to new communities will continue to increase this business.

Rates for firm natural gas service used for space heating were increased late in 1959, principally to offset increases in the cost of natural gas from the pipeline suppliers. The company had hoped to effect increases only after settlement of the rate requests by pipeline suppliers and it was able to wait as long as it did primarily because of the substantial increase in the number of customers that began using gas for space heating during recent years. Many of these new space heating customers were already using gas for cooking and water heating and little additional company investment was necessary to pick up the increase in load. Even after this recent increase, natural gas in the company's area is still substantially lower price than the less desirable competitive automatically-fired fuels. But, Iowa Power is concerned with the rate practices of the FPC which delay for many years the settlement of pipeline suppliers' rate increase requests.

The prospects are good for the natural gas business of Iowa Power. By 1964 it is estimated that this company will have added at least 22,500 additional gas customers, an increase of nearly 25 per cent over the present high levels. These new customers, in addition to increased consumption by present customers in industry and homes, assure a continued growth in gas sales to the predicted level of 34,703,700 Mcf. The continuing trend of industrial growth throughout the company's service area should provide an excellent opportunity for sales of gas to industry. A major share of the pected increase in industrial gas c sumption will go to present custom New industries also are expected add to the load.

All gas appliances will continue receive strong advertising and m chandising promotion. Since Io Power sells gas appliances in 17 co munities, it is in a position to maximum selling efforts to incre appliance sales. In addition, Io Power has had excellent relations a cooperation with all appliance deale

During the next five years Io Power will invest approximat $12.2 million in constructing new facilities. Most of this construct will be devoted to bringing service new customers.

Basically, the Iowa Power story a story of good balance—in the a it serves, in the sources of its re nues, in its capital structure, in physical plant. This balance preserv by customer acceptance and pub confidence is essential to sou growth and the ultimate realization the earning potential so attractive investors.

AMERICAN NATURAL GAS COMPANY

A NEW JERSEY CORPORATION

MICHIGAN CONSOLIDATED GAS COMPANY
MILWAUKEE GAS LIGHT COMPANY
MICHIGAN WISCONSIN PIPE LINE COMPANY
AMERICAN LOUISIANA PIPE LINE COMPANY

AMERICAN NATURAL GAS COMPANY
GAS
1901

AN INTEGRATED NATURAL GAS TRANSMISSION AND DISTRIBUTION SYSTEM WITH MORE THAN HALF A CENTURY OF SUCCESSFUL OPERATION—SERVING MORE THAN A MILLION CUSTOMERS —CONTINUING ITS EXPANSION PROGRAM

Iowa Southern Utilities Company

Centerville, Iowa

H. L. MANN, *President*

natural gas operations at Iowa Southern, the year 1960 has developed into a particularly eventful For a number of years, we have a backlog of natural gas spaceting applications which could not served from our limited supply. addition, initial service to several communities awaited Federal wer Commission approval. Origiapplication to serve some of these jects had been made as long as six rs ago. Early this summer we reved authorization for substantial reases in gas supplies for both new mmunities and communities already ved. It was not possible to get our 1960 construction program underway until July.

By the end of 1960, we will have installed gas distribution systems in nine additional communities and increased the number of spaceheating customers in presently served areas by 15 per cent. With the accelerated construction program, a major portion of our company budget this year is allocated for new gas distribution systems and extensions of existing systems.

A gas training school was initiated to train personnel for work in the new communities to be served. The school presents a combination of classroom and on-the-job training, and has proven very effective in providing us with competent employees.

A successful dealer relations program which has been in effect for some time has been enlarged to include the promotion of natural gas appliances.

There will continue to be many problems in the natural gas distribution business. Among these are securing additional gas supplies for yet unserved customers and the increasing wholesale cost of natural gas. We feel these problems are surmountable, and look forward to a good future in natural gas operations at Iowa Southern.

Kansas-Nebraska Natural Gas Company, Inc.

Hastings, Nebraska

S. D. WHITEMAN, *President*

URING the past year we have been greatly gratified by the wide actance we have found in our area the use of natural gas equipment year-around air conditioning. is certainly speaks well for equipnt manufacturers, and it helps us only to meet the competition but better our load factor through the reasing summer use of gas.

We have found that by working sely with local heating and air conioning dealers we can also stimulate m to intensify their sales of gas ipment, and we have men on our ff whose responsibility it is to intain close liaison with the dealers l help them in any way possible.

During 1960 we have brought tural gas service to several comunities in Kansas and in northwestern Nebraska. The acceptance of natural gas in those areas has been remarkable.

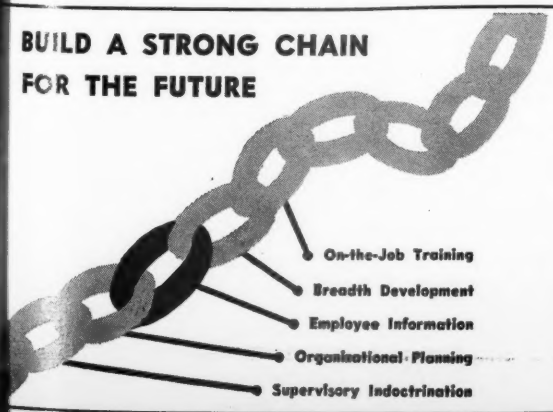
It seems to us that our experience with air conditioning sales and the demand for natural gas in new areas during this year point out quite dramatically that the American people do not want to be restricted in any way in their choice of fuels.

They will look for the most convenient, modern, and economical fuel available; they find those features in natural gas. Should a National Fuels Policy be adopted, as urged by the coal interests, the people would not have this free choice; it would be determined for them. Furthermore, if natural gas were forced out of its industrial, interruptible sales, the cost of gas service would become so high for the average homeowner that he would have to seek some other fuel despite the many other advantages of natural gas.

It would seem, therefore, that the adoption of the National Fuels Policy proposal would be absolutely contrary to the principles of freedom of choice and opportunity on which the American economic system was founded. It would be in opposition to the philosophy of healthy competition among industry for the benefit of the consumer.

The American public should be alerted to the inherent dangers of such a proposal and the serious consequences it could have for natural gas consumers.

(*Continued on Page* 50)



Well rounded management personnel are needed to lead the utility industry steadily forward. The P. U. R. Guide was created to fill the need for a strong link in understanding the non-technical aspects of utility operations. Join over 240 other gas, electric, telephone and water utilities which have enrolled in this program.

THE P.U.R. GUIDE

Public Utilities Reports, Inc.

332 Pennsylvania Bldg., Washington, D. C.

Lone Star Gas Company

Dallas, Texas

L. T. POTTER, *President*

THE prodigious, unparalleled growth of the natural gas industry during the last decade has served to establish natural gas firmly as a major energy, raw material and fuel source. Increasingly, natural gas has become a vital factor in the national economy, serving not only the home but business and industry as well.

The coming decade will witness growth expected to swell our population from the present 175 million to 200 million by 1970. The increased population will open new markets for more and better consumer goods and services, giving rise to the creation of new industries and the expansion of established industries.

Never has the future offered so stimulating a challenge to the natural gas industry. A progressive, united natural gas industry can and will compete successfully for its full share of that market. But it will do so in a climate of competition keener than ever before.

To meet the challenge of competing fuels, the gas utility and pipeline industry already is preparing for the future. More than $34 billion will be spent for plant expansion in the coming decade. Research activities will triple by 1965. By the end of the 60's, the industry anticipates a gain of 12.5 million customers and revenues totaling almost $12 billion.

This is the bright promise of tomorrow. But these gains cannot be anticipated as the natural result of an expanded economy through expanded population needs. There is a job selling to be done. This does not li itself to the sale of natural gas a pliances and equipment. The natu gas industry must sell itself in th broad areas to the public it serve

In the first area, regulation m be realistic and impartial if it is serve the best interests of the c sumer and all segments of the ind try. Consumer problems are indus problems. Industry problems are c sumer problems. These can be rec ciled. It would seem that the achie ment and maintenance of realistic impartial regulation at all governm levels could be accomplished if th mutual problems were defined a analyzed critically, then presented jectively with clear and positive so tions. An informed public can be industry's greatest ally.

The value of the natural gas ind try as an economic factor, vital to health and welfare of the nation, m be outlined clearly. At the city, st and national levels, the substantial bills paid by the natural gas indus contribute toward improved scho roads, hospitals, welfare progra and community growth. Its pay adds impetus to business and ind trial growth. The increasing i portance of natural gas in defe production and the premium quali that render it especially adaptable home, business, and industry m the continued vigorous growth of industry essential to the national w fare.

Research to produce better utili tion of natural gas and improved appliances and equipment the pub will prefer must be premised on conviction that the best that can developed today is only a thrust f ward toward an improved product the future. In a space-conscious wo where obsolete is defined as produ of today, we must keep ahead of t morrow.

In these three areas, the natural industry has taken initial steps. B the selling job that remains to be do must be achieved in terms of gia strides. A united, industry-wide effo will cause future growth to surpa the record-breaking accomplishme of the past.

It took 29 yrs. research to make
JAQUES hydraulic
HOLE DIGGERS
Fastest, Strongest, Safest
most economical!
Jaques TJ-254 digging at 30-degree angle. Operates at up to 45 degrees.
FREE
TEXOMA ENTERPRISES, INC.
HIGHWAY 75 North, SHERMAN, TEXAS
☐ Send me FREE detailed literature.
☐ Have representative call. No Obligation.
NAME
TITLE
ADDRESS
CITY
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Long Island Lighting Company

Mineola, New York

JOHN J. TUOHY, *President*

NG ISLAND LIGHTING COMPANY has confidence in the future of its business. Our campaign of intensive sales of house heating has gained wide acceptance in the LILCO territory and has substantially improved revenue and earnings. More than 80 per cent of the new homes in our gas area install gas heat. In addition, the builders and contractors in the area, in close operation with our salesmen, are very successful in converting older homes to gas from oil-fired furnaces. As a result, gas heating revenues have more than doubled since 1957 while earnings are up 80 per cent.

We expect to continue the successful promotion of gas. Long Island is still growing rapidly. In addition, there is a very large replacement market where oil burning equipment installed some years ago breaks down and can be replaced by gas.

Our biggest problem is competition. On Long Island oil and gas are closely competitive in price, a situation not found in many areas of the country. Gas sales are thus made on the undeniable superiority of gas, for which, we believe, our customers will continue to be willing to pay. However, the rising price of gas at the well head, passed on to us by our pipeline suppliers, is a source of concern. We believe that the producer is entitled to fair and adequate compensation. We do not believe, however, that he is entitled to "whatever the market will bear," especially in light of the fact that the same companies that sell the gas are also in a position to set the price for our oil competition.

Louisville Gas and Electric Company

Louisville, Kentucky

G. R. ARMSTRONG, *President*

Some Remarks on Combination Gas and Electric Company Service

WE'RE a so-called combination company serving a total of 195,000 electric and 167,000 gas customers. Although 22,000 of these electric customers are located beyond the present reach of our natural gas mains, all except about 2,000 of our gas customers are also users of our electric service. This means that most of our customers have the choice of using either our gas or electric service for such major household purposes as cooking, water heating and space heating. We're happy to furnish them with whichever kind or combination of service they prefer without making any effort to persuade them that either type of service is superior to the other.

Of course, the customer's choice as

(*Continued on page 52*)

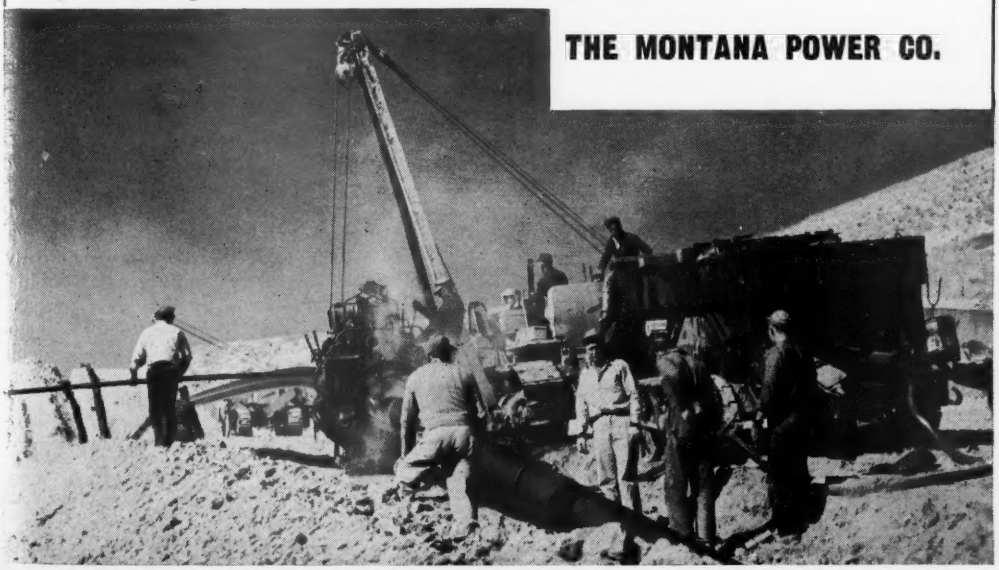
More Gas for Montanans!

Importation of additional natural gas from Canada, scheduled to begin next year, marks another step in Montana Power's continuing program to provide ample supplies of this low-cost, convenient fuel for the people and industries of the Treasure State. This project is part of an overall program of exploration, development and purchase designed to make sure Montana continues to enjoy the convenience of natural gas.

Pipeline construction such as that shown below will get under way this spring to build 55 miles of 16-inch line necessary to bring the Canadian gas into Montana.

Projects such as this are good news for Montanans, who have been using natural gas since 1931.

THE MONTANA POWER CO.



between gas and electric service is importantly influenced by relative costs of gas and electric operation, particularly for cooking, water heating and househeating. For example, at our 2-cent residential electric rate he pays $2 for 100 kilowatt-hours of electric range consumption. His cost of doing the same cooking job with 1,000 cubic feet of 1,030 Btu natural gas, billed at the initial blocks of our present gas rate, would be $1.29. The 71 cents difference isn't enough to keep him from installing an electric range if that's what he wants.

However, consider water heating. At our electric water heating rate of 1.1 cent the net electric billing for average monthly water heating usage of 320 kilowatt-hours is $3.52. Comparative billing for doing the same job with 1,800 cubic feet of natural gas computed at follow-on rate after 1,000 cubic feet of gas range consumption is only $1.38. That's $2 less per month or $25.68 less per year with gas service. This is quite a ... ing and we think explains why p... tically all of our gas customers ... gas instead of electricity for w... heating.

What about comparative costs ... gas and electric househeating? Dur... the 12 months ended July 31, 19... when Louisville degree days tot... 4,748 or 9.3 per cent over 4... normal we supplied 17,122 000 M... of gas househeating to an average ... 117,583 residential heating custom... for which they paid us $11,647,... or an average of 68.03 cents per M... That represents an average heat... consumption of 145.6 Mcf with ... corresponding average gas heating ... of only $99.06 per space heating ... stallation. Adjusted downward to ... basis of a normal heating sea... these averages would be reduced ... 133.2 Mcf and $91.15, respectiv...

To date we've taken on about ... electric househeating customers a... special rate of 1.5 cents per kilow... hour established in 1958. A deta... analysis of these electric heating j... discloses that in a normal Louisv... heating season the consumption o... Louisville area home equipped w... the exceptionally good insulat... which is a must for electric heat... will average 9 kilowatt-hour ... square foot of floor area. This me... that for an average home with 1,... square feet of floor area requi... heating consumption will norma... total 13,500 kilowatt-hours with a c... responding 1.5 cent electric ener... cost of $202.50. This is more th... twice the present cost of gas heat... for the same size of home equip... with only conventional insulation. ... think it explains why the vast m... jority of our cost-conscious custo... ers use gas for househeating and w... our present and prospective elect... househeating loads are pretty m... restricted to areas in which ... natural gas service is not available.

By reason of our company's fav... able electric rates in combination w... our lower than average gas rates ... believe our residential customers e... joy one of the lowest combined co... of unsubsidized gas and electric ser... ice to be found anywhere in ... United States.

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The Montana Power Company

Butte, Montana

J. E. CORETTE, *President and General Manager*

AN the Federal Power Commission dispose of its tremendous log of gas cases by following the mple set by the National Energy rd of Canada?

nce The Montana Power Com- is a pioneer in the importation as from Canada I have had an rtunity to intimately observe the latory procedures on both sides ur northern border and I believe the National Energy Board has blished a land mark in the field atural gas regulation.

he National Energy Board came existence on November 2, 1959, within two weeks had received applications for licenses to export On November 20, 1959, prehear- conferences were held by the rd wherein procedures for a joint ing were worked out between the rd members, the Board staff and nsel for the Applicants.

his joint hearing involved a total more than 6.7 trillion cubic feet as and the construction of facili- in Canada costing over $300 mil- dollars. The Federal Power Com- sion has never been presented a case of the same magnitude nor ngle case involving such impor- questions of public interest for entire nation.

earings started on January 5, 0, and proceeded on a five-day per k basis until February 12, 1960. roximately fifteen interveners ely participated in the hearing. Board required that cross-ex- nation of witnesses proceed im- iately after their direct examina- had been completed.

he hearing continued without ss or delay for approximately weeks. At the completion of the ence a one-day recess was given repare for oral argument. One day was allowed for the oral ument and at its conclusion the was submitted for decision. re were no briefs as the oral ment was considered adequate.

ix weeks after the completion of hearings the Board filed a com- nensive and voluminous report to Governor in Council recommend- that four of the applications be nted and that one be denied.

ive months after the applications e filed, export licenses were is- to the four successful appli- s.

he procedure followed by the onal Energy Board is not new. Many state and Federal Courts in America throughout the years have required that all of the evidence be presented at one time, that every witness be cross-examined immediately upon the completion of the direct examination, that oral argument follow immediately after the completion of the presentation of the evidence and that the case then be considered as submitted and ready for decision.

I suggest that this procedure as followed by the National Energy Board in Canada and by many of the courts in the nation, if adopted by the Federal Power Commission, might dispose of its enormous backlog of gas cases. Such a procedure would materially reduce the cost of regulatory proceedings both from the standpoint of the commission and of the parties and would result in substantial savings to the taxpayers and to the customers of the companies involved.

a MAJOR FACTOR in developing the Intermountain West

MOUNTAIN FUEL SUPPLY COMPANY

Salt Lake City, Utah

In rapidly expanding Utah-Wyoming area, the Company now serves 82 communities and more than 165,000 customers — in the production, transmission and distribution of Natural Gas.

Highlights of 1959
(and comparison with 1958)

	1959	1958
Total gas revenues	$28,528,855	$26,088,644
Net income	3,871,619	3,438,800
Net income per share	1.77	1.57
Dividends per share	1.20	1.20
Book value per share	19.44	18.87
Number of customers	165,663	155,444

Dividends have been paid each year since its organization in 1935. Listed on Pittsburgh Stock Exchange.

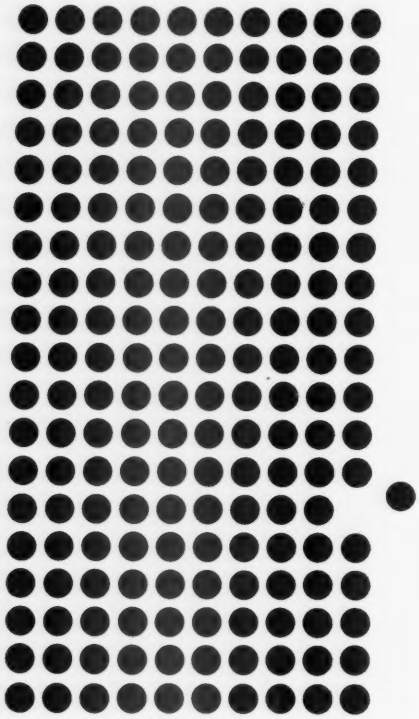
1959 Annual Report will be sent upon request. Address: Secretary, Mountain Fuel Supply Company, P. O. Box 989, Salt Lake City 10, Utah

natural GAS serves best...costs less

MOUNTAIN FUEL SUPPLY COMPANY

180 East First South Salt Lake City 10, Utah

WHAT IS A TEMPORARY ENGINEERING SPECIALIST?



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Mountain Fuel Supply Company

Salt Lake City, Utah

W. T. NIGHTINGALE, *President*

MOUNTAIN FUEL SUPPLY COMPANY has c pleted thirty years as an integrated na gas company engaged in exploration, produc transmission and distribution of natural gas. sonal heating of residential and commercial s tures has been and continues to be the lead growth in volume sales and revenue. With connections increasing at the rate of nine t thousand each year, the company now serves proximately 170,000 customers. Of these, per cent use gas for seasonal heating of h and commercial structures. Accordingly, the " demand" which is required during the co winter temperatures continues to be the m problem in the maintenance of an econo average load. The company has always been tunate in having a number of large interrup industrial customers by which it can balance load and secure a planned over-all system factor without storage or peak shaving.

It is recognized, however, that there is a to the amount of large volume interruptible dustrial business which is available. Accordin since the seasonal heating load will continu increase, other measures to complement its load factor must be planned and developed. company has been making intensive efforts to prove the load factor and average revenue in ways. An attractive rate applicable to the seas heating of very large structures and institut provided they install adequate standby fuel accept curtailment secondary to the large in trial users has met with considerable success.

Although gas water heaters are used by 83 cent of the customers, a major sales promo program is in operation by which it is beli the water heating saturation can become equa that of house heating, namely 96 per cent. C parable sales efforts are devoted to other dom uses of a non-seasonal nature. An intensive liaison with dealers is endeavoring to dev summer air conditioning. Some success has b apparent with large new office and comme buildings. While the strictly summer type of c mercial load such as canneries, road mat preparation, large swimming pools, etc., have considered as saturated for some years, surp ingly, new additions regularly continue.

As to gas storage, unfortunately, Moun Fuel's semi-depleted reservoirs are all at wrong end of the system. During recent ye considerable geological studies have sought us aquafers in the distribution area. The compan presently investigating what appears to be a w filled closed structure located about thirty-f miles up-stream from its principal sales area. E nomics have so far ruled out peak shaving.

The foregoing brief remarks have touched only one phase of our problem and planning. have selected this subject because increased tention to all means of load balancing has become more imperative than heretofore with company.

Nashville Gas Company

Nashville, Tennessee

WISTER H. LIGON, *President*

NASHVILLE GAS COMPANY continues its healthy growth in customers, sales and revenue.

Our business is built on sales and service, since we have relatively little price advantage over other fuels. With intensive TVA competition in our area, every home built in our service area is a battle of the fuels—between gas and electricity. Last year's residential electric customer paid less than 1 cent per kilowatt-hour for electricity in Nashville. In spite of this, we have increased our share of the speculative homes for sale this year.

This has been accomplished largely with promotional help for the home builder. Our company furnishes promotional material, advertising and personnel to aid in selling homes equipped with gas. We have, for several years, been diligently plugging the "Fresh Air" story (as compared with stale air electric resistance heating).

We have strongly advocated first, gas air conditioning—and second, provision for some kind of air conditioning when the house is built—even though it may have to be added later.

There is now a great interest by the public in air conditioning and gas lights. Some builders are installing a gas light with each new home, and we have several gas lighted subdivisions.

With 83 per cent saturation of gas heat among our customers, we can well afford to concentrate on new homes.

Our company recently completed a modern service center for our operating department. This, together with our attractive downtown office, completed a few years ago, gives us an attractive front to put before the public.

We believe if we are going to talk modernity, we must be modern—in buildings—in trucks—in meters—in uniforms—in service.

Our company has a plan of keeping modern gas appliances in the home economic classes of all our schools, with our home service girls giving cooking and drying demonstrations from time to time.

Last year, we started a mobile office, which is an office in a trailer. This office moves all over our service area, allowing our customers to do business with us and to see modern merchandise at the same time they are paying gas bills.

Nashville Gas is probably the only privately owned utility where a customer can pay his gas, electric, water and telephone bill at one place. This can be done at our main office.

We expect 1960 to be our best year.

Northern Illinois Gas Company

Aurora, Illinois

MARVIN CHANDLER, *President*

RESEARCH is the one area of utility operations which assures a utility that it will endure and will grow. Research is all-important. Its value cannot be overemphasized. The gas industry is already active in research, but much more vigorous and broader efforts are an absolute must if we are to keep our competitive position as the supplier of the best and most economical fuel for homes, businesses and industries. In addition, an intensive research program helps to enhance the industry's modern and forward-looking image.

Intensification of research by utilities is taking three co-ordinated courses. Sponsored research—such as that of the American Gas Association and the Gas Appliance Manufacturers' Association—is being broadened, and should be expanded even more in the near future. The other two courses represent action by individual utilities: they adapt new technology developed by other companies' research departments, and they actively engage in their own research projects.

At Northern Illinois Gas Company, our research interests include:

Reading of large meters by telephone;

Directly converting gas to electricity by both thermoelectric generators and fuel cells;

Sealing main joints internally by remote control;

Inspecting mains internally with closed-circuit television;

Developing new techniques in aquifer storage;

Perfecting the hydrogenation of coal.

Of course, we are also very interested in dynamic improvements in appliances, such as infra-red ovens and ceramic burners.

Other important NI-Gas targets also will result in more modern, efficient operations, as well as better customer and public relations. Some of these are bolder planning, particularly in long-range planning; work simplification; increased mechanization; improved safety; expanded market research; extended sales activities; broadened public relations; and intensified employe communications. We are in the second year of our five-year "Growth Opportunity" Plan—a gradual realignment of our organization that is permitting us to expand in an orderly manner, and is improving prospects for future profitable operations through higher efficiency.

Rapid growth continues to highlight our operations. In the past twelve months, we have added 47,800 new customers and now have about 700,000. Additional supply and storage gas has enabled us to connect approximately 95,000 more gas space heating customers in this period. Around 400,000 of our customers now have space heating.

We received an increase in our daily pipeline supplies of 118 million cubic feet per day for last winter, and are getting another 101 million cubic feet daily for the present heating season. This will bring our total to 619 million from three major pipeline systems. An increase of 73 million more is on order and expected before the end of 1961.

Underground storage facilities will provide up to 310 million cubic feet daily this winter—an increase of 125 million over a year ago. Our underground aquifer storage reservoir at Troy Grove, Illinois, is operational for the first time this autumn. This reservoir can furnish 100 million cubic feet a day now and already is being expanded. Our efforts to develop other similar storage reservoirs have been accelerated. We hope and expect to have substantial additional quantities of gas available from storage to meet an estimated peak day sendout of 1.5 billion cubic feet in four years.

(*Continued on page* 56)

In the five-year period of 1960-64, we plan to spend $200 million on construction, including $38 million for under-ground storage development. About $140 million of new capital will be needed. This year we raised $45 million of this total in new money, including a $30 million 25-year first mortgage bond issue awarded July 13. The issue, with a 4⅝ per cent coupon and a public offering price of 100.369, gave us a net annual cost (after expenses) of 4.68 per cent—the lowest cost obtained by any utility in over a year.

In the twelve months ended July 31st, we sold 164 billion cubic feet natural gas. Revenues climbed $125 million (up $26 million fr the prior year) and earnings per co mon share were $2.13 (a 22 per c increase over the previous twe months).

North Shore Gas Company

Waukegan, Illinois

ROY E. JONES, *President and General Manager*

NORTH Shore Gas Company (Illinois) has enjoyed a profitable year in its fiscal year just ended. Prospects for the following year seem to be favorable and there seems to be some easing of supply problems which have caused house heating waiting lists for twelve years. It seems likely that residential heating can be brought up to date by the end of the calendar year, and commercial and industrial space heating can receive some attention in 1961.

Aggressive competition is in evidence, but it will be met with a well manned and well trained sales force supported by good advertising a sales promotion among prospect new as well as existing gas custome

It seems probable that a rec construction year will occur in 19 in this northeastern corner of Illin where the company serves appro mately 60,000 customers.

Northern Natural Gas Company

Omaha, Nebraska

JOHN F. MERRIAM, *President*

NORTHERN Natural Gas Company is continuing the excellent growth that has been characteristic of many gas companies in the past decade.

Presently the company is continuing its expansion program commenced last year when the Federal Power Commission authorized the company to serve 342 additional towns in six states.

Forty-three of these communities, including the Duluth-Superior area, were added last year. This year, 58 of the communities are being added to Northern's system. The company also is building facilities to bring 75 million cubic feet daily to those communities presently on Northern's system.

Northern has filed two certificate applications with the Federal Power Commission which would expand the company's system into new areas. One application would provide for facilities to supply Michigan-Wisconsin Pipeline Company with 75 million cubic feet of gas daily. The other application requests authority to construct a 63-mile pipe line from Duluth to Silver Bay, Minnesota to serve a taconite processing plant and two communities.

Like many other natural gas companies Northern has expanded its system rapidly in recent years. Well planned growth by the nation's pipeline companies has placed the industry in a very sound position with gas supply and markets both in good shape. But, of course, this rapid growth has not been attained without problems.

Our principal problem in the industry resulting from this rapid growth has been the delay in Federal Power Commission decisions brought about by the increasing number of certific and rate cases. FPC procedu should be reviewed by Congress a changed to help meet the great l which has been placed on the co mission. Such points as the follow could be specifically considered:

a. Eliminating all unnecessary data and procedures.
b. Eliminating any right of competitive fuels to participate in gas certificate or rate cases.
c. Transferring the electric industry duties of the Federal Power Commission to another agency to permit full Commission concentration on gas matters.
d. Simplify gas producer problems by providing for regulation of gas field price as a commodity, which gas is, rather than as a public utility service, which it is not.
e. A review of Federal income taxes as affecting regulated companies, including the gas utilities and pipelines.

I believe that a revision of pr cedures considering such points the above would enable our natur gas industry to more ably meet foremost obligation—that of pub interest.

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Northern States Power Company

Minneapolis, Minnesota

ALLEN S. KING, *President*

NORTHERN States Power Company, which this year is spending about $12 million to bring natural gas service to approximately 35,000 customers, now provides natural gas service to more than 160,000 customers. The customers added this year have previously been supplied manufactured gas service, a type of service no longer provided by NSP in any of its service area as it has now been replaced with natural gas.

Last year NSP's gas revenues amounting to $26,049,000 represented 13 per cent of the company's total revenues.

Northern Natural Gas Company sells natural gas to NSP for distribution in Minnesota and Wisconsin. A second pipeline supplier, Midwestern Gas Transmission Company, now supplies natural gas to NSP, bringing in gas from Canadian fields which NSP distributes in communities in North Dakota, Minnesota and Wisconsin.

Considering supplies from both natural gas suppliers, present construction is making natural gas available in 32 more NSP communities with a total population of 347,000. The largest communities receiving natural gas at this time are Fargo and Grand Forks, North Dakota; St. Cloud, Winona, East Grand Forks, and Moorhead, Minnesota; and Eau Claire, Menomonie, and LaCrosse, Wisconsin.

An incidental benefit of natural gas service, NSP finds, is its value as a public relations tool in helping communities thus served to promote industrial development. NSP has an active industrial development department which is making the most of the importance to industry of natural gas service and is finding it a valued addition to the list of assets of the communities it promotes.

Oklahoma Natural Gas Company

Tulsa, Oklahoma

H. A. EDDINS, *President*

OKLAHOMA Natural is an integrated company engaged primarily in the business of purchasing, producing and distributing natural gas for sale to retail and wholesale customers.

With the recent acquisitions of Northern Oklahoma Gas Company, which served the cities of Ponca City, Perry and Newkirk, and the Standard Gas Company, which served the cities of Madill and Tishomingo, Oklahoma Natural now serves directly 395,205 customers in 163 cities, towns, and adjoining areas having an estimated total population of 926,000.

We are in active competition with other purchasers for new gas supplies and with two large electric utilities for our markets. Our gas heating saturation is over 99 per cent. To balance our heavy heating load we are promoting vigorously gas air conditioning for residential, commercial and industrial use. We now have connected to our lines approximately 51,600 tons of gas air conditioning.

The company has four underground storage operations having a total capacity of 157 billion cubic feet. To utilize this storage capacity to full advantage, our transmission system has been designed to transport gas in large volumes from our principle points of supply into and out of our storage facilities.

As evidence of the effectiveness of our transmission and storage facilities, as recently as February 24, 1960, when we experienced our peak day, we delivered 779,227 Mcf to 380,541 customers. On that day 47 per cent of the total gas delivered was supplied from storage.

Our construction expenditures for the past year were $8.7 million excluding the Northern Oklahoma acquisition. It is estimated that our capital expenditures for the current year will be $9.1 million. Of this amount, approximately $1.8 million will be used to provide service to an estimated 9,900 new customers, $2.5 million for replacements and improvements to service facilities, about $1.9 million exploration and drilling, with the remainder for additional investment in gasoline plants, storage facilities, extension to new gas supplies, miscellaneous acquisitions, installations and general items.

Pacific Gas and Electric Company

San Francisco, California

SHERMER L. SIBLEY, *Vice President and General Manager*

The Alberta-California Project Breaks Ground

GROUND is to be broken this autumn on the 1,400-mile, $340 million Alberta-California Project, a large diameter pipeline system that will carry Canadian natural gas to customers of Pacific Gas and Electric Company in northern and central California.

The Alberta-California pipeline is scheduled for completion by the winter of 1961-62, which will necessitate an all-out effort by contractors during the coming winter and the 1961 construction season.

At the time of the preparation of this article, PG&E and its associated companies in the Pacific Northwest and in Canada, as well as the engineering managers for the Project, Bechtel Corporation in the United States and Canadian Bechtel Limited in Canada, were preparing to award the primary construction contracts and begin the clearing and preparation of the pipeline right-of-way.

The Alberta-California pipeline will bring a new source of gas to PG&E and its 1,640,000 gas customers through the north end of the company's system. Until now, PG&E has depended upon gas from California fields and upon gas from the Southwest piped to it by a single out-of-state supplier, El Paso Natural Gas Company.

(*Continued on page* 58)

At the beginning of operation the Alberta-California pipeline will bring into California an average of about 415 million cubic feet of gas a day. The line is designed for optimum daily delivery of about 800 million cubic feet as PG&E's system demands rise and as additional gas becomes available for export from Canada.

In addition to carrying gas to California, the international pipeline system also will deliver gas to El Paso Natural Gas Company for distribution in the Pacific Northwest and to The Montana Power Company for distribution in Montana.

In granting the application of the newly-organized Pacific Gas Transmission Company to build and operate the 614-mile Idaho-Washington-Oregon section of the Alberta-California line, the Federal Power Commission praised the Project in these words: "This proposal to connect the enormous Alberta gas reserves with the rapidly expanding west coast markets is one which holds promise of great benefits to both countries."

The California Public Utilities Commission, too, had approving words as it authorized construction of the 300-mile California section of the pipeline: "The logic of matching (PG&E's) growing requirements for gas with the virgin gas resources of western Alberta is abundantly clear."

The California Commission cited PG&E evidence that during the period 1960-70 the population in the company's gas service territory, now about 6,210,000, will increase by about 40 per cent. The commission went on to say:

"The record contains clear and convincing evidence that the applic primary gas supplies must be stantially augmented to meet needs of an expanding population to maintain the vigor of Califor two-fuel economy."

The Project will also bring stantial economic benefits to Can In addition to capital outlays for pipeline system proper in Alberta British Columbia, amounting to estimated $145 million, many lions more will be spent for proces plants needed to extract liquid hy carbons and sulphur from the "so gas, and for well drilling needed develop and extend the gas fi from which the Project's gas su will come.

The Peoples Gas Light and Coke Company

Chicago, Illinois

ESKIL I. BJORK, *Chairman*

THE Peoples Gas Light and Coke Company and its pipeline and its storage affiliates, which we call "Peoples Gas system" for convenience, is continuing during 1960 to make additional supplies of gas available in its market area.

Natural Gas Pipeline Company of America and Peoples Gulf Coast Natural Gas Pipeline Company are currently engaged in constructing facilities which will add 193,570,000 cubic feet (1,000 Btu gas) to their combined peak day delivery capacity.

Natural Gas Storage Company of Illinois is proceeding with an expansion program which will increase its peak day delivery capacity by 75,150,000 cubic feet (1,000 Btu gas). Upon completion the peak day delivery capacity of these three sources of gas will be 2,169,753,000 cubic feet, which represents a growth of about 15 per cent during the calendar year 1960. The cost of these expansion programs is estimated to be $76.7 million.

Pending before the Federal Power Commission is an application by Natural Gas Pipeline Company of America to acquire the assets of Peoples Gulf Coast Natural Gas Pipeline Company and to take over the operation and facilities of the latter company. Both of these pipeline companies are wholly owned subsidiaries of The Peoples Gas Light and Coke Company and the combining of their facilities and operations will provide greater flexibility and achieve operating economies and other advantages.

The permanent financing of the 1960 pipeline expansion programs has been deferred pending decision by the Federal Power Commission on the application of Natural Gas Pipeline Company of America to take over the assets of Peoples Gulf Coast.

In the meantime, both of these pipeline companies have filed applications with the Federal Power Commission to further expand their combined peak day delivery capacity by 105 million cubic feet in 1961. It is our present expectation that Natural Gas Storage Company of Illinois will, in due course, file an application with the commission for authority to increase its peak day delivery capacity in 1961 by another 78 million cubic feet. These projects, if certificated, will increase their combined delivery capacity by another 8½ per cent.

The Peoples Gas Light and Coke Company, which distributes and sells gas within the City of Chicago, will have its supply of natural gas increased by about 78.5 million cubic feet per day as a result of the 1960 expansion programs of its pipeline and storage affiliates. This has enabled the company to authorize space heating service to the equivalent of 55,000 single family premises, although as a matter of fact the authorizations will go not only to single family residences and multi-family residential premises but also to commercial and industrial establishments.

The Peoples Gas Light and Coke Company also had in prospect an crease of 20 million cubic feet of per day for delivery from Midwest Gas Transmission Company late 1960 but hearings on this expans project are still pending before Federal Power Commission.

Earlier this year the Illinois C merce Commission authorized Peoples Gas Light and Coke C pany to conduct a pilot test to de mine the feasibility of utilizing a g logical structure in the vicinity Mahomet, Illinois, for the und ground storage of gas. The comp is currently in the process of secur the necessary rights to proceed w such a test and it is hopeful that injection of gas may begin before end of the year.

Preliminary drilling has indica that there is a dome-like geolog structure at this location and that St. Peter sand, a water bearing st has the permeability and porosity sential to a good underground stora facility. The injection of a quant of gas and the observation of the sults of such injection will enable company to determine whether should seek authority from the I nois Commerce Commission to p ceed with the development of project as a storage facility.

Inasmuch as space heating cons tutes a substantial portion of the bu ness of The Peoples Gas Light a Coke Company and has further st stantial growth potential, the devel

of storage facilities in parallel pipeline expansions is essential ieving the most economical sup- gas. It permits the injection of uring the summer months when there is no need for it by space heating customers, for withdrawal during the winter months when such need exists.

The expansion programs of our pipeline and storage companies and the sales program of The Peoples Gas Light and Coke Company reflect our confidence in the growth and development of our service area.

Public Service Electric and Gas Company

Newark, New Jersey

DONALD C. LUCE, *President*

ITH business activity at a high level and residential construc- holding at a good pace, Public ce Electric and Gas Company n optimistic outlook for the con- d expansion of its gas business. latest forecast indicates an in- e of 43 per cent in gas sales over next five years. Approximately r cent of the increase is building g, expanding now at the rate of 0 additional customers per year. e factor contributing to the ex- on of building heating is the ling Levittown housing project is the first major Levitt de- ment to be heated by gas. This ct will have more than 4,000 s completed and occupied by ary of 1961. Plans call for the ion of 16,000 homes, supple- d by schools, churches, shopping centers and recreational areas.

Total company gas sales for the year 1960 has been estimated at 846 million therms of which approximately 58 per cent is building heating.

A well-rounded area development promotional program has produced results, evidenced by the influx of industrial gas consumers. This program, selling the advantages of the territory in New Jersey served by Public Service, will continue.

The program of converting customers' appliances from mixed gas to straight natural gas is continuing and by the end of this year, over 550,000, or about 50 per cent of all the gas customers, will be served with straight natural gas.

Gas supplies are adequate to meet demands but the company must make provisions for additional gas to meet future requirements. The natural gas supply at the end of 1959 amounted to 5,361,000 therms per day, 582,000 therms greater than the supply at the end of 1958. The company has, under contract or under negotiation, a total of 5,966,000 therms of natural gas for the 1960-61 winter, an increase of 605,000 therms during the year.

The company maintains manufactured gas production facilities for the production of mixed gas and for peak shaving. Conversions of carburetted water gas sets to high Btu operation are being made to increase the capacity of these facilities.

Public Service was recently granted a general rate increase amounting to $10 million per year but the portion applicable to gas rates has, at this writing, not yet been determined.

(*Continued on page* 60)

THE CHECK THAT'S BEEN MAILED EVERY YEAR FOR 108 YEARS

There's something solid about Cincinnati . . . and the great industrial area of which it's the center. Here we have a steady growth of widely diversified industry. Here, you find one of the nation's most skilled labor forces . . . with pride in its exceptionally high productivity rate. And it's hard to imagine a more ideal location as a distribution center. All this has given the area's economy an enviable stability. It's not surprising that in such a community the Gas & Electric Company would reflect that *same* stability —with an unbroken record of stock dividends paid, every year, for 108 straight years.

The Ohio River, which will carry 3 times as much commercial tonnage as the Panama Canal by 1963, is a great asset to the Cincinnati area. It will become even more important as the high lift dam program, now in progress, is completed.

THE CINCINNATI GAS & ELECTRIC COMPANY

108 years of unbroken dividend history

San Diego Gas & Electric Company

San Diego, California

HIRAM G. DILLIN, *Executive Vice President*

THIS is a story of growth decentralization and reorganization. San Diego's phenomenal growth has been widely publicized. San Diego Gas & Electric Company experienced an 85 per cent increase in electric customers and 95 per cent increase in gas customers in the last ten years. The gain in 1958 broke all previous records; then, in 1959, the rate of gain jumped 25 per cent over 1958.

The construction, operation, and maintenance of distribution facilities, both gas and electric, for this explosive growth in an area in excess of 4,000 square miles, created some serious problems.

The operations of the company had been divided between gas and electric services with top supervision for each department located at a central headquarters in San Diego. In recent years three subsidiary operating units had been established in the cities of Oceanside, Escondido, and El Cajon, with both gas and electric functions brought together under a district operating supervisor. This became the pattern for complete decentralization. Three additional operating headquarters have been established this year, and a fourth is in the planning stage. These new operating headquarters are strategically located to serve better and more economically the San Diego metropolitan area.

With this change in physical facilities it was found desirable to reorganize the supervisory forces. Production and transmission becom integrated department responsibl supply of gas and electricity. The tribution department carries the ous services to the customers thr the district operating headquar with some back-up of central ser

Commercial activities are still ried on through a separate syste central and district busines of These latter activities are integr with the operating functions thr high-level supervisory control.

Fortunately for this transition rate of gain in customers has ease in recent months. The net gain the first seven months of 196 about 60 per cent of the gain re tered in the same period during l

South Atlantic Gas Company

Savannah, Georgia

H. HANSELL HILLYER, *Chairman of the Board*

JOHN F. PIDCOCK, *President*

THE obligation of a public utility to provide service and to deal fairly with everyone in its franchised area should not obscure the fact that it cannot be "all things to all men." Our experience with the merchandising of appliances is a clear illustration of the need for utilities, just as other businesses, to establish precise objectives and concentrate on achieving them.

Our basic sales promotion program had involved working with all of the 100 or more appliance and plumbing and heating dealers in our area. At the same time, and with the same salaried staff that called on dealers, we conducted our own direct merchandising activities. After five years of experience with this program—and although our relationships with dealers were on a good basis and we felt that they were doing an effective job—a review of our sales promotion efforts showed that they were not achieving the total results that would be necessary in the future.

As a result of this review, a number of changes were made:

1. Dealer relations for gas range and dryer sales were assigned to one man to call regularly on the 25 range and dryer dealers who accounted for nearly 85 per cent of gas appliance sales. He was provided incentive compensation and prospect protection for his dealers against company salesmen where prospects were identified. The other 75 dealers were given assistance as requested and for special promotion.

2. Dealer relations for water heating and heating dealers were assigned regularly to the two builder and two air-conditioning salesmen.

3. Our own merchandising activities were stepped up b diverting five people to fu time direct selling on a geo graphical basis, with commis sions on sales, and with marke research assistance to pin-point appliance sales opportunities.

This program has run just year, and the results of focusing attention on specific objectives even better than we had hoped. *a year when appliance sales nation are down, both our own direct and those of dealers are up subs tially*—even though we reduced total sales promotion costs by 17 cent and our advertising cost by per cent.

By using a rifle instead of a s gun, we have been able to mak smaller amount of ammunition a more effective.

South Jersey Gas Company

Atlantic City, New Jersey

T. H. KENDALL, *President*

SOUTH Jersey Gas Company, I am happy to say, experienced a continuation of very healthy growth in all phases of its operations during the past twelve months, and there is every indication of continued growth in its service area.

Residential and commercial sales are increasing, and rapid industrial development, in addition to stimulating economic growth of the area, is providing a large and profitable market for industrial gas sales, both firm and interruptible. Our interruptible sales enable us to purchase gas at an annual load factor of over 95 per cent, thereby lowering the ave cost of gas purchased. This is a important factor in our ability to sorb increasing costs of doing b ness and maintain stable r tes.

Our friends in the coal indu argue that retail consumers subsi interruptible sales such as ours,

sely th opposite is true. I think very in portant, as recognized by Americ n Gas Association, that coal propaganda be defeated in urpose of governmental end use ol. There are, however, other ven more urgent problems which nt to discuss.

am greatly concerned about the and regulatory problems facing as industry, creating uncertainty confusion as to the future cost of al gas and the availability of ad- al supplies to meet growth requirements. Unless these problems are resolved promptly, the entire gas industry and the customers whom it serves will suffer irreparable loss. Yet, six years after the Phillips Decision, little progress has been made toward any practical solution. Corrective legislation, long hoped for, is still a distant prospect.

It's high time that all of us in the gas industry work together and with the Federal Power Commission to solve these problems, as best we can, within the framework of existing legislation. Perhaps the best way is settlement agreements negotiated between producers and distributors. Some of these have been worked out, with the approval of the FPC.

I urge the producers, pipeliners and distributors to make every effort to resolve their differences. Let's remember that each of us is dependent upon the other, and none can succeed alone. Neither legislation nor regulation alone can solve these problems. We just have to sit down together and try to work them out.

Texas Eastern Transmission Corporation

Houston, Texas

ORVILLE S. CARPENTER, *President*

ODAY's high standard of living in the United States is directly re- to our development of produc- uses for mechanical energy. A aratively recent development, society founded upon utilization ssil fuels has enabled man to ac- lish miracles. Only in the last years has man changed from cle" energy to "inanimate" en- his very existence until the in- ial revolution was largely based griculture and handicrafts which ded man with the bare necessi- f life.

though energy has been a major r in the development of civiliza- something else has been in- d: the principal element has man's continuing desire and y to harness energy and have it at his direction. Many examples echnological development of en- uses can be cited and possibilities for future technical advances are limitless. To the extent that man can continue to add to his knowledge of energy and its uses, he will continue to improve his level of well-being.

Utilization of fossil energy sources is based on a "twofold equation":

1. Seeking and producing the fossil fuels to satisfy ever-expanding needs;
2. Providing economic and efficient means of transporting these fuels to the points of consumption.

Pipelines have played a key role in transporting huge quantities of energy at economical costs; their many advantages over other forms of transportation make them the ideal means for transporting energy fuels.

Studies by Texas Eastern and others indicate that the United States consumption of energy will double by 1980. There is no doubt that sufficient quantities of fossil fuels will be available and the business of transporting energy, therefore, becomes one of the outstanding growth industries of today. In addition, developments of new energy sources and forms also point toward a glowing future for pipelines. Gasification of coal and oil from shale are two such sources. Transportation of solids in slurry form will also be developed.

Much of the initial and rapid growth of pipelines is now behind the natural gas industry and these companies can now give thought to long-range economic objectives—to attempt definition of their economic purpose. This purpose must rest solidly upon service; the continual expansion of demand for energy offers to the natural gas pipelines the opportunity to become tomorrow's pipelines of energy.

United Gas Corporation

Shreveport, Louisiana

ED PARKES, *President*

o natural gas companies pay enough attention to research do we make full use of the re- ch facilities and people some of ave?

me think of research as only rator work or experimentation group of people set apart from rest. At United we consider them hinkers, a group of people with al education and with that requi- inquisitiveness—who have time ink in an atmosphere free of dis- ion. While we pursue many ues of pure research such as fuel and solar energy, the greatest ribution of our research brain is in the solution of current problems. We have no qualms about asking research such questions as:

1. How can we speed up the preparation of our rate increase applications?
2. Is our retirement plan satisfactory?
3. How do we really stack up against electric competition?
4. Can you design a management game for each phase of the gas industry?
5. Will you design a pipe caliper to measure internal corrosion?
6. Can we automate the clerical aspects of gas measurement?

The answers received were all affirmative and the results amazing. Regulatory lag in our applications to the Federal Power Commission was reduced by three months. The pipe caliper saved many dollars in pipe replacement. We developed an electronic orifice meter chart integrator, a miniature tape recorder for meter readers, a linear chart averager. In fact, so many new devices that the UGC Instruments Division was estab-

(*Continued on page* 62)

lished to make and market them so that they will be available to the entire natural gas industry.

Every gas company, large or small, can well use research—even if it be only one man. In addition to freedom from distraction he must be relieved of all routine duties and must have access to all employees and t management. The results will than pay the cost.

Washington Gas Light Company

Washington, D. C.

DONALD S. BITTINGER, *President*

Selling—Plain Old-fashioned Selling!

THE fine art of selling as we knew it before World War II was a casualty of that war many people say, and to a large extent I agree. With the onset of that war the manufacture, distribution, and sale of consumer items was curtailed, and properly so, in the interest of producing the necessary tools of war. After the war was over the pent-up demand for consumer goods was so great it was not necessary to sell. Customers clamored to buy!

During this same postwar period the dramatic era of transcontinental natural gas pipelines came upon the scene and natural gas was brought to most of the cities on the eastern seaboard. Ours was among the first of those cities. This period brought its problems—adequacy of supply, rate matters, construction and conversion problems and so on. So much attention was devoted to these things —we didn't need to sell anyway!— that we, and I suspect many other companies, came to be "operations oriented," and understandably so.

A few years ago we heard rumblings about the electric heat pump, better methods of resistance heating, improved oil burning equipment, etc., and to many of us they sounded merely like distant rumblings.

More recently the facts of life about a real, live and present "battle of the fuels" has burst upon many of us and for others it won't be too long in coming!

Our response will be to return vigorously and fully to a more "sales oriented" outlook! Competition for our traditional loads in heating, water heating and cooking have spurred us to make a floor to ceiling inventory of every facet of our marketing methods. We are up on our selling toes again, and we are going to stay there! I predict that this will be the most lenging single thing facing the i try in the decade of the sixties— ing. Construction budgets, regulatory matters, supply, load tors, etc., will still be with us they will no longer dominate ou terest.

I am using the word Selling broadest sense to include the pr tion and sale of modern gas e ment by every fair and legiti means, the sale of a natural-gas- ice package, etc. And we mus further. We must take prompt to counter the inroads of the idea gas is obsolete! We can and we show that when it is brought t burner tips of modern equipmen use of natural gas is as moder tomorrow morning!

For us and for the entire ga dustry the next decade will tru the "Selling Sixties"!

Greetings and Best Wishes

to the

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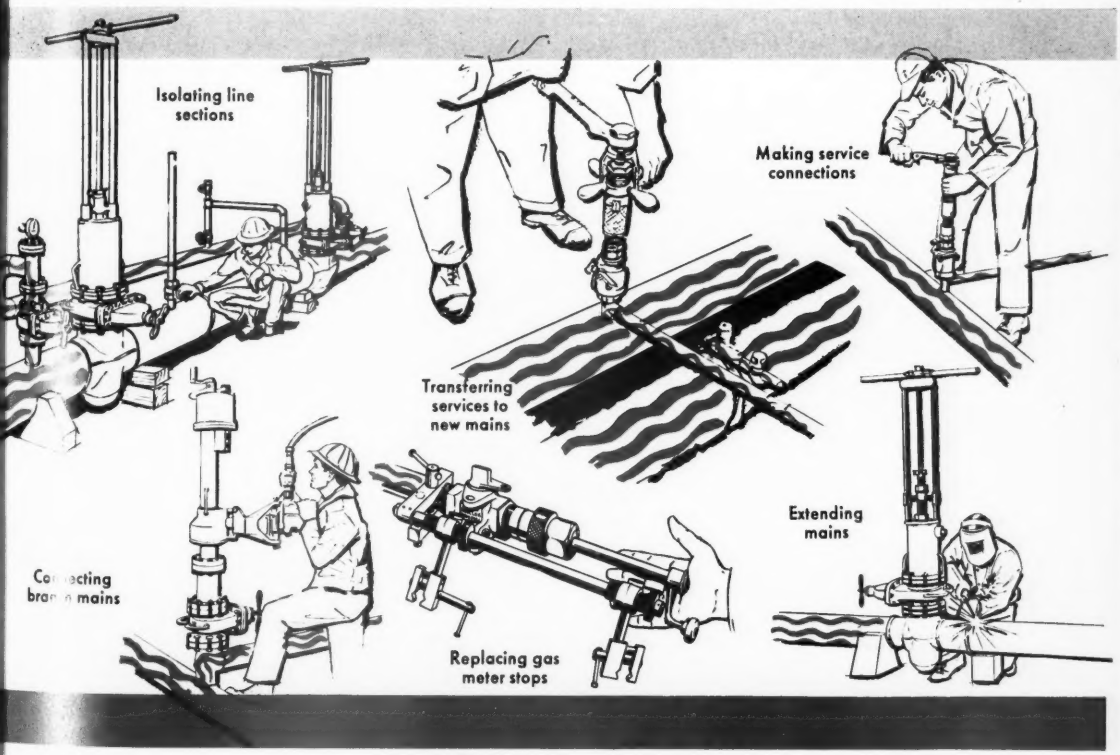

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